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ABSTRACT

The manual is designed as a guide for the development of a physical fitness program for handicapped persons. An introduction emphasizes the role of fitness and provides an overview of the 45-minute developmental exercise program described in the following sections. Instructional information addresses such concerns as equipment, vocabulary, sequence, levels of instructional assistance, levels of performance, and classroom management. A discussion of the importance of good posture is followed by explanations of the exercise program components: warm-ups, aerobic exercise, and cool-down procedures. Both the aerobic and developmental exercise programs are organized according to beginner, intermediate, and advanced levels. (CL)

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**EXERCISE PROGRAM FOR THE DEVELOPMENTALLY DISABLED:
IMPROVING AND MAINTAINING PHYSICAL FITNESS**

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Preface and Acknowledgements

The maintenance of physical fitness is an essential aspect of human life. Handicapped persons often require special consideration and assistance in maintaining their physical well-being. Therefore, when an individualized adaptive physical education program is not available there is a need for a resource which can serve as a guide in the implementation of an exercise program specifically designed for handicapped persons. This manual is in direct response to the need for such a resource and was expressly designed as a guide for the development of a physical fitness program for the handicapped.

The manual contains illustrations of exercises to be implemented in the program. Carolyn Kiank is the artist responsible for the completion of the illustrations. Finally, the project could not have been conducted without the understanding and support of Doris Haar and Scott McGuire of the Department of Health and Human Services, Administration on Developmental Disabilities.

The authors wish to personally acknowledge and thank each person who contributed to the project.

LTM/CSW
June 4, 1982

INTRODUCTION

Physical fitness is a necessary goal for every human being. The maintenance of a healthy body fosters improved mental psychological and physical functioning throughout a person's lifespan. Therefore, early establishment of an exercise program can facilitate and help maintain physical well-being and provide enjoyable experiences.

Because the instructor serves as a model for each student, it is necessary for him/her to have knowledge of the program and ability to correctly perform all of the exercises. Enthusiasm as a motivator for the process of developing a healthy, physically fit body is important for the instructor and each participant. The purpose of this manual is to provide a suggested exercise program with explicit technique information for each exercise. The program is planned to develop a physically fit body, better posture, coordination, balance, flexibility, endurance, rhythm, position of body in space, body image, and a sense of accomplishment.

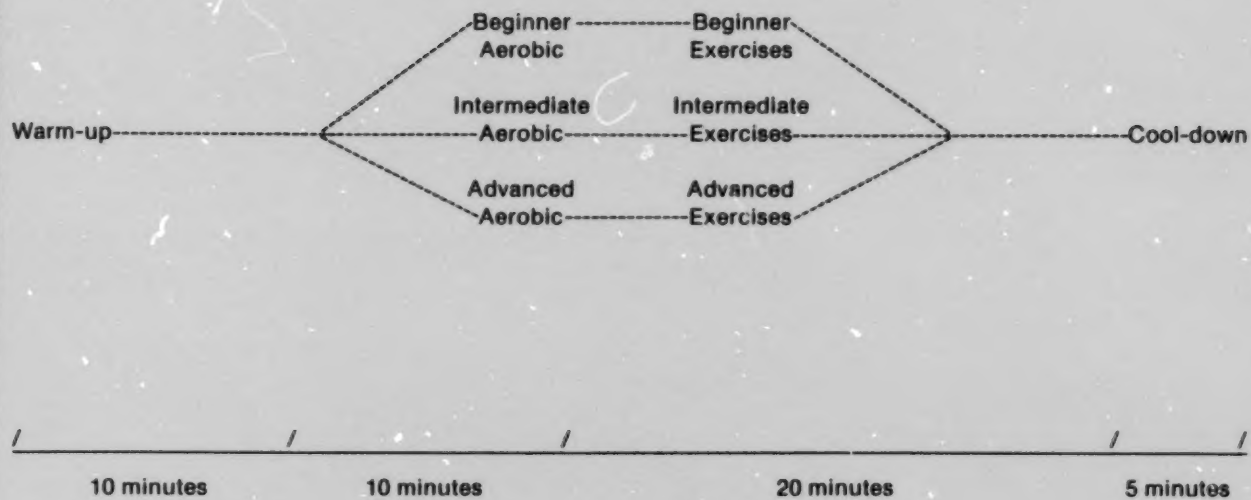
These physical abilities can be achieved through a daily, forty-five minute routine of easy-to-perform exercises. The forty-five minute developmental program is segmented into three exercise units. The first ten minutes are devoted to a traditional warm-up of the entire body. The next ten minutes consist of a modified, aerobic exercise program which facilitates cardiovascular activity. The next twenty minutes require maximum exertion. The final five minutes bring the body back to a normal level of performance. This routine should be followed consistently to provide correct development and to avoid body stress. The sequence and time intervals for the exercise program are presented in Figure 1.

The forty-five minute developmental exercise program is planned to provide the student with movement exercises which will meet his basic, physical fitness needs. It is very important to follow the format of warm-up, aerobic exercises, maximum exertion, and cool-down exercises. The warm-up exercises consist of stretching and flexing the muscles to prepare them for exertion. The exercises must be performed slowly and deliberately in order to bring the heartbeat up gradually and to avoid strain and injury to leg and back muscles. This part of the program must never be neglected. The aerobic exercises are intended to activate the cardiovascular system, contributing to physical fitness. The maximum exertion exercises place a healthy demand on the heart, lungs, and muscles of various parts of the body. Breathing becomes rapid and the heartbeat increases to supply oxygen to the working muscles. The cool-down exercises must be performed to slow down the breathing and heartbeat to normal. Stretching exercises for five minutes will bring all body functions back to a normal state. The instructor should routinely use the warm-up exercises to prepare the muscles for maximum exertion and cool-down movements. These exercises help the student develop endurance, strength, body control, coordination, balance, and flexibility. After the correct technique is learned, the advanced program will demand faster repetitions of the exercise in order to achieve the desired effect—overall physical fitness.

Each component of movement must be performed accurately as described in the manual. Correct body placement is absolutely necessary for the performance of each exercise as illustrated in this manual. Body placement refers to the posture necessary for the correct execution of each exercise. The body needs to be held correctly in position before initiating the movement exercises. Correct body placement for each movement in the exercise will be described at each step. The instructor will need to initially concentrate on appropriate body placement before starting the exercise program. Each exercise requires a step-by-step procedure for correct body placement so that maximum benefit of the movement and use of the muscles is obtained. For a student with limited capacity to follow verbal directions, the exercise program may be taught by pantomime and by physically prompting the student through the exercise.

Figure 1

EXERCISE PROGRAM SEQUENCE



The developmental exercises in this manual are organized according to increasing levels of difficulty. The three levels of performance (beginner, intermediate, and advanced) are determined according to physical difficulty. The beginning exercises provide a foundation for the progressive improvement of physical fitness. The intermediate exercises involve greater facility of the use of the muscle systems and increased coordination, strength, flexibility, controlled endurance, and improved cardiovascular capacity. The advanced exercises complete the exercise program in an attempt to maintain a physically fit body capable of responding to the demands of daily living. Figure 2 presents the purpose of a particular exercise unit (i.e. standing balance) and the comparable exercise for the beginning (foot-press/knee-lift), intermediate (standing leg lift), and advanced exercise (standing leg lift-front/back). The exercise program is conceptualized and organized as a developmental sequence for essential dimensions of neuromuscular coordination, strength, flexibility, control, balance, endurance and improved cardiovascular capacity.

As the student advances, an exercise may be performed at a particular level, but may require more repetitions or greater control and facility. For example, advanced exercises require greater stamina, more complex coordination, and involve a mental attitude to advance beyond their present capacity. As the instructor reviews each individual's progress, notice how physical and mental demands increase with each level. The students will realize how much they progress when the instructor uses praise for each additional achievement. The students' self-esteem and self-expectancy continually increase as they accomplish new movements and realize their increased physical capability. It is important to follow a progression of accomplishments from the beginning, intermediate and advanced exercises to assure that the student has achieved physical fitness.

When starting the program, the students need to become acquainted with a new vocabulary, learn how to isolate specific areas of the body, learn to work with the other students as a group, learn to follow directions, and learn techniques of moving with synchronized rhythm. Start all students with the beginning exercises and proceed onto the next level when the students are ready. A student may appear to be in good physical condition, but he may have a physical weakness which is not immediately noticable. Depending on an individual's physical capacity, he may advance rapidly in specific exercises, while other exercises will require continuation at the beginner level. There may be uneven development of particular neuromuscular skills which require individualized programming of the exercises. It is better to proceed slower and with caution rather than risk injury to weak muscles. Advancement depends on how quickly the student can achieve the desired technique and his ability to perform all exercises independently and without physical strain.

Eventually, the student will achieve the advanced level. They are then ready to maintain their physical fitness by involvement in a maintenance program. The advanced level may be performed three days a week. The remaining two days can be devoted to activities which utilize the students' physical abilities. For maximum benefit and student interest, exercise every other day. Be sure to include the warm-up and cool-down movements before and after any workout. When the students seem to have an understanding of the techniques of each exercise, music can be used as a motivator and stimulus. Rhythmic music of various cadences make an excellent accompaniment to the exercise.

The entire program of developmental exercises was designed specifically for moderate and mild mentally retarded persons. However, the program may also be appropriately adjusted to fit with instructional methods for the severely and profoundly retarded. Remember that consideration is given to their limited agility, strength and understanding of body movement. The program is particularly well suited for use in public schools as well as adult day care and work activity programs, community residential settings and instructional recreation programs.

Figure 2

ORGANIZATION & DEVELOPMENTAL SEQUENCE OF EXERCISES

Purpose	Beginner	Intermediate	Advanced
1. Standing Balance	Foot Press/Knee Lift	Standing Leg Lift/ Arm Extension	Standing Leg Lift (Front and Back)
2. Bilateral Coordination Leg Strength	Jump	Jumping - Feet Apart/Close	Jumping Jacks
3. Bilateral Coordination Arms & Shoulder Strength	Push-Up to Knees	Arm Walk	Bent Knee Push-Up
4. Range of Motion-Hip Flexors Strengthen Seat Muscles	Rear Leg Lift	Rear Leg Lift on Knees	Rear Leg Lift to Hip Height
5. Upper Trunk Extension	Shoulder Lift	Raise Head & Shoulders	Airplanes
6. Lower Abdominal Strengthening	Cat Stretch	Knee Lifts to Chest (Lying Down)	Leg Curls
7. Upper Abdominal Strength	Curl Up & Down	Bent Knee Sit-Up	Leg Lift/Curl Up
8. Trunk Rotation Bilateral Coordination	Sitting Twister	Sitting Windmill	Standing Knee/Elbow Touch
9. Lower Trunk Mobility	Hip Twist	Sitting Leg Twist	Body/Leg Twist (Lying Down)
10. Cardiovascular (Aerobic)	Walking	Walk/Jog in Place/Jump	Walk/Jog in Place/Jump/ Jumping - Feet Apart/Close

Clothing

All exercise sessions require clothing which permits comfort and total, unrestricted movement of the body. The student should wear gym shorts, short-sleeved cotton-knit shirts, and no shoes or socks. Loose-fitting clothing allows the student to concentrate on the techniques of the exercises rather than on uncomfortable sensations caused by restrictive clothing. If the student cannot provide correct clothing, encourage him to wear loose fitting slacks and T-shirts.

The exercises in this manual are presented according to levels of difficulty to gradually facilitate proficiency of movement and strength and avoid unnecessary stress. The instructional format must be followed to assure that the student's body has developed a support system of muscle ability for each new exercise. Each exercise also develops the student's understanding of how his muscles are functioning during the performance of the movement. He will be able to call into play certain muscles to help him accomplish a particular movement. The student will benefit from this knowledge while performing activities which call for strength, balance, coordination, flexibility, and endurance. For this reason, the instructor must emphasize the how and why of proper technique during each training session to ensure cooperation.

The instructor should help a student acquire correct technique through an on-going process. Correct technique is a goal which requires focus, but should not stifle a student's spontaneous attempts at performing the exercise. The student should be permitted to perform an exercise without a self-conscious fear of making a technical error. The instructor can reinforce the components that were performed correctly and tactfully suggest adjustments that will help the student correct other components in the series of movements. Through practice enhanced with constructive correction, a student will achieve the desired performance goal. The instructor should remember to always use praise whenever the student makes a correct adjustment. If the instructor places value on a particular technique, the student will feel proud and will also value the technique.

The instructor should select the students presenting the best technique and position them in the front row of the class to act as additional models. This responsibility will strengthen the model's confidence and provide support for the student who must follow the demonstration. As the slower learning student progresses, he should be provided the opportunity to act as a model.

Technique is a very important component for correct physical development. By following the suggestions in this manual, the student will achieve the goal, find enjoyment in performing the exercises, and develop pride in his accomplishments.

Music Description

Accompaniment music for the developmental exercises can be used in the program after the student has learned the correct techniques in performing the exercises. Each exercise must be performed to music of the appropriate cadence as suggested in the training outline. The student should focus on learning to synchronize his movements to the rhythm of the music after mastering the correct techniques. Introducing music too soon can cause confusion for the student who can concentrate on only one cognitive demand at a time.

Music can be an enjoyable motivator for the student. The beat of the music encourages the student to continue working until the required number of repetitions for each exercise is performed. Music also helps the student develop a sense of rhythm for each body movement in an exercise. This sense of rhythm will carry over to daily physical activity.

The instructor should choose interesting music that has a defined beat (preferably 2/4 or 4/4 time) which the student can readily recognize. Appropriate music of fast, medium, and slow cadence can be found on disco, country/western, popular, some rock, marches, and classical music used in dancing. Sources of recorded music for ordering purposes for dance, exercise, and recreation can be found on page 6 of the manual. It is recommended that records containing verbal instruction be avoided.

List of Addresses of Record Companies and Distributors:

Southern Music Company
1100 Broadway
P.O. Box 329
San Antonio, TX 78292

Macmillan Publishing Co., Inc.
866 Third Avenue
New York, NY 10022

Hallmark Records
6600 Harwin
Suite 111
Houston, Texas 77036

Canyon Records
4143 N. Sixteenth Street
Phoenix, AZ 85016

Indian House
P.O. Box 472
Taos, NM 87571

Folkways Records
43 W. 61st Street
New York, NY 10023

Lyrichord Records
141 Perry Street
New York, NY 10014

Nonesuch Records
962 No. La Cienega Blvd.
Los Angeles, CA 90069

Monitor Recordings, Inc.
156 Fifth Ave.
New York, NY 10010

Balkan Arts
514 W. 110 St. No. 3
New York, NY 10023

The Library of Congress
Motion Picture, Broadcasting
and Recorded Sound Division
Washington, DC 20540

Roundup Records
P.O. Box 147
East Cambridge, MA 02141

Festival Records
2769 W. Pico Blvd.
Los Angeles, CA 90006

Leo's
2451 North Sacramento Ave.
Chicago, ILL 60647

Peters International
619 W. 54th Street
New York, NY 10019

Graeme Vanderstoel
P.O. Box 599
El Cerrito, CA 94530

Down Home Music, Inc.
10341 San Pablo Avenue
El Cerrito, CA 94530

CAUTION: ALL STUDENTS ARE REQUIRED TO HAVE A PHYSICAL EXAMINATION. BE SURE TO CONSULT EACH STUDENT'S INDIVIDUAL PHYSICAL RECORD BEFORE BEGINNING THE EXERCISE PROGRAM. FOR INDIVIDUALS WITH IDENTIFIED PHYSICAL OR NEUROMUSCULAR DISABILITIES, CONSULTATION WITH A PHYSICAL THERAPIST TO IMPROVISE AN INDIVIDUAL PHYSICAL FITNESS PROGRAM IS RECOMMENDED.

INSTRUCTIONAL INFORMATION

There are specific procedures which are necessary for the instructor to follow in order to provide a successful developmental exercise program for handicapped individuals. Ideally, the instructor should group students according to their performance levels. For example, a student who has limited receptive vocabulary, restricted awareness of body in space, confusion of left and right, and the capacity to follow only one or two step directions should be placed in a group where the majority of students are at the same developmental level. For slow learners, additional time will be needed to prepare the students to assume the correct body posture and acquire the correct performance techniques. If grouping of the students is impossible, allow an appropriate period of time for the slow learners.

The instructor may need to focus more attention on the students who have the most limitations in performance readiness. The low-functioning individuals will need to be taught by focusing on the strategic or step-by-step components of each exercise. The students who learn quickly, however, will benefit from participating in additional, repetitious practice of the step-by-step procedures. The following instructional information will aid the instructor in planning the developmental exercise program. It is recommended that the instructor try to use as much of the information as the teaching environment will permit.

CAUTION: DO NOT CONTINUE EXERCISING IF ABNORMAL HEART RATE, PAIN, DIZZINESS OR OTHER DISTRESS IS EXPERIENCED. CONSULT YOUR PHYSICIAN.

A gymnasium or a large empty room is the ideal place for an exercise program. However, a room can be converted into an exercise area by moving tables, chairs and other equipment aside to create an empty space. Each student will require a minimum of four square feet of space. If it is impossible to provide enough space for all of the class to participate simultaneously, let them take turns.

Equipment

Performing floor exercises on a bare wood, tile or concrete floor is very uncomfortable. The instructor can solve this problem by providing or requiring each student to have a small 2-by-4 foot strip of indoor/outdoor carpeting with a rubber backing. Also, the instructor may purchase commercial gym exercise mats of any size desired. These are available in the sporting goods section of most department stores or sport stores.

Mirrors on one wall of the exercise room will enable a student to receive immediate feedback when performing an exercise. The preferred mirror size is 6 feet high, mounted 2 feet from the floor, and 8 feet in length. An alternative is to tile one wall with 1 foot mirror tile. Each student needs approximately 6-by-2 feet of mirror space. A student can observe how his body is positioned and make corrections. He can visually compare his interpretation of a movement to the instructor's model. Observation of the reflection of his body in the mirror also serves as a stimulation to motivate maximum effort.

Vocabulary

It is recommended that the student spend the first exercise session getting acquainted with his body and learning the exercise vocabulary (Table I). Notice whether or not the student can identify body parts. Instructional word concepts must be understood by the student before an exercise can be performed independently. The checklist of words included in Table I are used in the exercise program and include directions, activities and body parts. The instructor will say and demonstrate the activity for each word in order to teach the student the exercise vocabulary. The student must demonstrate his understanding by performing the correct movements for each of the words. The student has gained an understanding of the vocabulary when the instructor has given verbal directions (i.e. "Lift the left leg off the floor and keep the right leg straight"), and the student has correctly demonstrated the required movement. When the exercise program is first introduced, spend a few minutes teaching the vocabulary for directions, activities, and body parts within each exercise period.

Sequential Instruction

Presentation of new movements to a student should be slow, deliberate, sequential and concrete. The student will need to understand precisely where his body parts are correctly placed for each component of the movement. For example, demonstrate a circular movement of the arms as follows:

1. Move the arms to shoulder height on the count of one.
2. Move the arms above the head on the count of two.
3. Extend the arms back on the count of three.
4. Lower the arms to the side of the body on the count of four.

As the student learns this series of arm positions correctly, the instructor may start moving smoothly through the series of positions rather than stopping at each strategic position. The advanced goal will be a continuous movement of the arm in a large circle. This method of presenting an exercise will enable the instructor to make adjustments in the student's body alignment and adjust body parts to the proper position to assure that the exercise will be learned correctly. The instructor may stop at any strategic position to make necessary corrections.

Sequential presentation of an exercise will enable a student to use the senses of hearing and seeing, as well as doing. The following is a guide for using this process to help a student learn correctly:

1. State the name of the exercise.
2. Verbally describe the series of movements required to perform the exercise.
3. Slowly move through the series of movements for the exercise by demonstrating the technique, as you provide a verbal description.
4. Have the student participate in performing the series of movements with the instructor serving as a model. (Watch for steps which are not performed correctly.) Have the student repeat the performance and participate with the instructor, serving as a model, at least three times before going on to the next step (number 5).
5. Have the student perform the exercise alone while the instructor observes. During this portion of the instructional process, you will be able to notice where the student needs help and determine whether verbal direction, physical assistance, or demonstration are required.

Each student learns best with different instructional levels of help. Most exercises require both simultaneous verbal instruction and physical demonstration. During the initial presentation of the exercise, the instructor will be able to determine whether the student needs the instructor to physically move the student's body through the exercise, whether the student needs further demonstration, or whether the student and instructor need to practice the exercise together.

Table 1

EXERCISE VOCABULARY

Direction	Activity	Body Parts
Right (dominant)	Place	Ankle-Arms
Left (non-dominant)	Bend	Hands
Place	Supporting	Knees
Bend	Jump	Shoulders
Rise	Hop	Small of Back
Lower	Lift	Back
Forward	Lower	Spine
Backward (reverse)	Watch Me	Abdomen
Sideward	Stand	Leg
At Sides	Return	Buttocks (seat)
Up	Point	Chest
Down	Contract	Pelvis
One Arm	Tuck	Chin
One Foot	Straight	Head
Both Arms	Straight Ahead	Eyes
Both Feet	Small	Upper Torso (Body)
Shoulder Height	Locked	Waist
Back of Knee	Pressed	Hips
In Front of	Together	Toes
In Back of	Stationary	Diaphragm
Together	Standing	
Beside	Pulled	
Flat	Breathing In	
Focus	Breathing Out	
Arms Hanging	Swing	
Under	Squatting	
Over	Roll	
Between	Stretch	
Rear	Crawling	
Below	Shifted	
Above		

Each student will need different levels of instructional help for the various exercises. The following is a list of levels of instructional help which may be used during any time in the instructional process:

Levels of Instructional Help

- Level 3.** Performs independently (autonomous practice): The instructor can state the name of the exercise to the student. In response to the auditory stimulation from the instructor, the student is then able to perform the exercise without requiring any other kind of assistance from the instructor. This level of performance is seldom obtained on initial presentation of the exercise. The instructor can set this level of instructional help as a goal to demonstrate that the student has learned, understands the correct technique, and can perform the exercise entirely on his own.
- Level 2.** Simultaneous Verbal Instruction and Physical Demonstration: This level of instruction is most often used when the instructor initially presents the exercise. Verbal instructions should be as concise as possible and use very simple words. "Karen, hop on one foot." "Stand up straight." (The instructor demonstrates the correct posture as he gives the directives.) "Lift both arms up. Like this." Again, he demonstrates the action during the verbal instruction. The same process is continued until each step of the exercise has been presented through simultaneous verbal instruction and demonstration.
- Level 1.** Simultaneous Verbal Instruction and Physical Assistance: This level of instruction is most often used when the student needs a little more assistance before he can respond to the instructor's directive for the exercise. The instructor will tell the student the name of an exercise, give verbal instruction for each movement, and assist physically with any step that the student is having difficulty performing. The instructor should position his body close behind the student when giving physical assistance for a movement. This prevents confusion from additional visual input and provides the student with a more accurate idea of how the exercise should feel. The student will be able to concentrate on the physical input and verbal direction. Always use short sentences and simple words. The instructor may present the exercise in this way, "Karen, hop on one foot. Stand up straight." (As the student attempts to stand with correct body placement, the instructor may touch areas of the body that need to be repositioned or he may help the student move a body part by pressing, pulling, or lifting that part of the body.) Such assistance will help the student understand the position a particular body part must assume. "Stretch both arms straight out." (The instructor may actually lift the student's arms and correctly position them.) "Lift your left foot up like this." (The instructor may grasp the student's left foot and lift it off the floor to ankle height.) "Bend your right leg." (The instructor may apply pressure to the back of the right knee to encourage the student to bend the knee.) "Jump on the right foot." (The instructor may need to offer support for balance by grasping an arm, or he can stand in front of the student and motion for the student to jump towards him.) Remember to give verbal and physical help simultaneously. This helps the student who needs concrete reminders of how to manage his body.

The time spent during the learning process is very important. It is necessary for the instructor to focus his attention on the particular level of instruction needed by the individual student. There will be a mixture of students who initially learn through either Level 2 (Instructor Demonstration) or Level 1 (Simultaneous Verbal Instruction and Physical Assistance.)

Spending time with individual learning needs at the beginning of a new exercise will assure the instructor that each student has an understanding of the correct technique for performing the exercise and understands the sequence of steps in the exercise.

Levels of Performance

The student's performance of each exercise can be evaluated by considering their level of performance. The level of performance corresponds with the levels of instructional help.

- Level 3. Performs Independently (autonomous practice). In response to the instructor's command, the student is able to perform the exercise without requiring assistance, demonstrates correct techniques without a model, and maintains proper tempo and endurance in performance of the exercise.
- Level 2. Follows verbal and visual cues from the instructor. The instructor serves as the model. The exercises are performed with verbal prompting. While the technique may be correct, the tempo, endurance, and quality of the movement pattern indicate continued practice is needed before advancing to the next exercise level for that neuromuscular dimension.
- Level 1. Requires verbal instruction as well as physical assistance and prompting to perform and facilitate movement. The instructor guides the student through the exercise with verbal and physical prompts. Technique may be approximate and in need of improvement.

An individual student chart of progress may be maintained to monitor the student's acquired skills. Figure 3 provides an example of a chart which may be used to monitor the student's progress. This figure may be copied for use in your facility. Simply check the column which indicates the level of performance (i.e. Level 3. Performs independently, Level 2. Follows verbal and visual cues, Level 1. Requires verbal instructions as well as physical assistance and prompting to perform and facilitate the movement) and the type of exercise (i.e. Beginner, Intermediate, Advanced) for each individual student. The exercise on each line across the chart form a continuum. The beginner exercise prepares the student for the intermediate exercise on the same line. The intermediate exercise prepares the student for the advanced exercise. When the student achieves independent performance (3) at each level (beginning or intermediate), he should then be ready to progress to the next higher level. Keep in mind that the warm-up and cool-down exercises are used continuously at each level.

Classroom Management

Management of the student's behavior in the exercise class can be difficult unless discipline is established. The class providing instruction in gross motor movement is stimulating because of the muscle action which increases heart rate, breathing, circulation and activates metabolic processes. The interaction with a neighbor, which may take the form of competition, will increase excitement. Freedom from constricting clothing will stimulate a desire to move about. Enthusiasm for the activity encourages verbal and physical responses. Though these reactions are desirable, they can cause loud and distracting behavioral responses.

Traditional discipline is an effective tool to control behavior in a movement class. Body improvement is serious business and the student needs to realize that they must develop respect for the opportunity to learn the skills. Traditional discipline is a set of behavioral expectations which are taught to the student on the first day the class meets. The student will

Figure 3

INDIVIDUAL CHART OF PROGRESS

	Beginner	Level			Intermediate	Level			Advanced	Level		
		3	2	1		3	2	1		3	2	1
1. Standing Balance	Foot Press/ Knee Lift				Standing Leg Lift				Standing Leg Lift (Front/ Back)			
2. Bilateral Coordination Leg Strength	Jump				Jumping - Feet Apart/Close				Jumping Jacks			
3. Bilateral Coordination Arms & Shoulders Strength	Push-Up to Knees				Arm Walk				Bent Knee Push-Ups			
4. Range of Motion Hip Flexors Strengthen Seat Muscles	Rear Leg Lift				Rear Leg Lift on Knees				Rear Leg Lift to Hip Height			
5. Upper Trunk Extension	Shoulder Lift				Raise Head & Shoulders				Airplanes			
6. Lower Abdominal Strengthening	Cat Stretch				Knee Lifts to Chest (Lying Down)				Leg Curls			
7. Upper Abdominal Strength	Curl Up & Down				Bent Knee Sit-Up				Leg Lift/ Curl Up			
8. Trunk Rotation Bilateral Coordination	Sitting Twister				Sitting Windmill				Standing Knee/Elbow Touch			
9. Lower Trunk Mobility	Hip Twist				Sitting Leg Twist				Body/Leg Twist			
10. Cardiovascular (Aerobics)	Walking				Walk/Jog in Place Jump				Walk/Jog/Jump Jumping - Feet Apart/Close			

learn to conform to the instructor's expectations if the instructor is consistent and insistent that the rules be kept. The following are suggested basic rules:

1. A safe and orderly entrance into and exit from the exercise area (the instructor must decide what is appropriate for his facility);
2. Class silence when the instructor is speaking;
3. Waiting quietly while others are performing;
4. Refrain from laughing at other's mistakes;
5. Applause or praise for good performance.

The instructor can allow or provide some time for the students to verbally express their enthusiasm and humor after an exercise set. He should also provide a cue to signal the class to become quiet again. A clap of the hands, turning the room lights off, or a verbal reminder are suggested cues.

When a student exhibits attention-getting behavior during class, the instructor is advised to ignore the individual and direct comments to the entire class. An example of attention-getting behavior would be mischievous physical teasing of a neighbor while the instructor is speaking. Usually the person being teased will respond with, "Teacher, make Karen leave me alone." That comment will attract the attention of the entire class, reward the teaser, reinforce the behavior, and cause the instructor to lose the attention of the class. It is recommended that the instructor manage this type of behavior by giving the entire class a new command such as, "Class, take your places for leg raises." Ignore the distractions and immediately replace it with a new stimulus.

Occasionally, a student's behavior must be individually corrected. The instructor should ignore behavior which is unacceptable, provide alternative acceptable behavior and praise correct behavior. Class will be enjoyable for everyone when the student's behavior is controlled and when an atmosphere conducive to learning is maintained.

Summary

A relaxed, enthusiastic approach to presenting the instruction while maintaining control is essential for a successful exercise program. Technique requirements can be positively learned if each small improvement is noticed and praised. A student will be able to concentrate on learning when the fear of failure is removed. Exercising can and should be fun!

CHAPTER II

Posture

A physical fitness program begins with learning how to hold the body correctly. Each body part must be kept in a correct position to give the student greater efficiency in movement, allow for better health, and improve personal appearance.

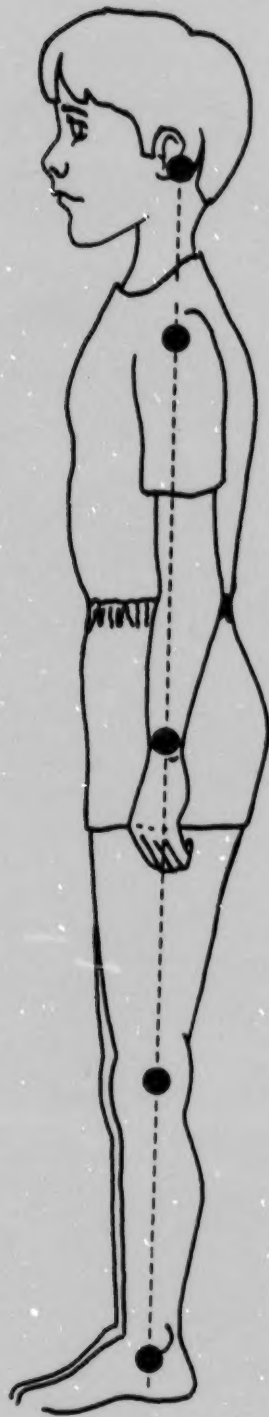
Poor posture can cause backaches, foot pain, and shallow breathing. A student may develop one or all of the following postural problems: slumping head, uneven shoulders, uneven hips, an S curve in the spine, lower back sway, or a hump in the upper back caused by slumping shoulders. Maintaining good muscle tone and learning how to carry the body correctly can facilitate and maintain improved posture.

Many existing postural problems respond to exercises which strengthen the muscles that support the body. The narrative accompanying the posture drawing explains how to position the body correctly. It is critical that the instructor follow the suggestions for muscle control that accompany each exercise.

As the student develops body control and good posture, he will discover that his improved coordination, balance, vigor, pride, and general fitness are accomplishments which facilitate his ability to function at work or leisure.

Posture
(Correct Body Placement)

- Step 1. Stand with feet about six inches apart. Toes should point at a 30 degree angle.
- Step 2. Place both arms at the sides with the elbows relaxed.
- Step 3. Keep knees straight, but relaxed.
- Step 4. Tuck the pelvis slightly forward by contracting (pulling in) the abdominal muscles and tightening the buttocks. The back should become as flat as possible without straining.
- Step 5. Lift the chest as the position of the pelvis is adjusted and the abdominal muscles and buttocks are contracted.
- Step 6. Keep the shoulders straight and relaxed. Avoid hunching the shoulders toward the head. Avoid forcing the shoulders back by trying to squeeze the shoulder blades together.
- Step 7. Lift the head and pull it back. Keep the chin level.
- Step 8. Focus the eyes straight ahead.
- Step 9. Balance the body weight between the ball of the feet and the heels. Avoid letting the body lean forward or backward. The student should imagine that a string is attached to the top of his head, and he is being lifted off the floor. This will help give him the feeling of standing absolutely straight.



For those students who have difficulty understanding how to adjust the body for correct posture, the following movements are recommended:

- Step 1. Stand with the feet about six inches apart. Point the toes forward. Place the arms at the sides of the body.
- Step 2. Lift the chin and bend the upper torso slightly forward at the waist.
- Step 3. Contract (pull-in) the abdominal muscles.
- Step 4. Raise the body to an original standing position, maintaining the contraction of the abdominal muscles. The body will automatically have adjusted to the correct posture when step 4 is completed. The body weight will be supported by the diaphragm and abdominal muscles rather than sagging onto the hip cradle.

Draw the student's attention to the position of the pelvis, spine, shoulders, and back by asking how it feels to stand with the abdominal muscles contracted, the pelvis slightly forward, and the spine held flat. The student must become aware of how correct posture feels to realize when the body is correctly adjusted.

There are five checkpoints in the body for correct body alignment: point 1 is located at the ear lobe; point 2 is located at the edge of the shoulder; point 3 is located at the middle of the hips; point 4 is located at the knee joint; and point 5 is located slightly in front of the ankle bone. An imaginary line drawn from point 1 straight down to point 5 shows the correct body alignment of the posture drawing. The instructor should be able to adjust the student's posture by visualizing this line.

CHAPTER III

WARM-UP EXERCISE PROGRAM

	Repetitions
1. Knee Bends	4
2. Arm Circles	8
3. Side Stretch	8 (each side)
4. Sit Down on the Floor	5
5. Diaphragmatic Breathing	6
6. Floor Leg Stretch (feet together)	10
7. Ankle/Foot Stretch and Flexion	4 (each foot)
8. Head Roll	3 (both directions)
9. Rise from the Floor	5
10. Lunge	5 (each leg)

The purpose of the Warm-Up Exercise program is to prepare the muscles for exertion. It is recommended that the warm-up exercises be presented to the student in the sequence as outlined above. Each exercise should be performed at a slow tempo. The number of repetitions for each warm up exercise is intended to sufficiently stretch the muscles and provide a warm-up before beginning the more strenuous exercises.

Remember, the exercise program sequence is set-up as follows:

1. Warm-up Exercise Program
2. Aerobic Exercise Program
 - a. Beginner level;
 - b. Intermediate level, or;
 - c. Advanced level.
3. Developmental Exercise Program
 - a. Beginner level;
 - b. Intermediate level, or;
 - c. Advanced level.
4. Cool-Down Procedures

Knee Bends
(with feet apart)

- Step 1. Stand with both feet 24 inches apart.
- Step 2. Place the hands on the hips.
- Step 3. Rotate the feet out to each side at a 45 degree angle.
- Step 4. Bend the knees. Press the knees outward to the same 45 degree angle as the feet. Keep the small of the back straight by tucking the pelvis forward as the buttocks are contracted. (The downward knee bends are performed slowly to the count of 1, 2.)
- Step 5. Straighten the knees slowly to the original position to the count of 3, 4.
- Step 6. Repeat 4 times.

The feet are placed at a 45 degree angle to provide better balance. For the purpose of avoiding strain on the arches and ankles, the knees must be pulled outward to the same 45 degree angle as the feet until they are in line with the position of the feet. This position aids in maintaining balance and control of the entire body during the knee bend. The depth of the knee bend is determined by the student's ability to maintain correct body placement. The student should never bend so deeply that his buttocks are lower than his knees. This could cause excessive stress to the knee joint.

The student can be helped to keep the small of the back straight by squeezing the abdominal muscles as the knees bend. It is important to avoid letting the back sway and the buttocks stick out because the target muscles will not be stretched. The student could be helped to understand the correct technique by imagining that there is a stool placed between his feet, and then pretend to sit down on that stool. If the student is unable to use his imagination, use a real stool a few times until the correct body position is learned. The seat of the stool should be higher than the student's knees. Caution: if the student has had knee surgery or complains of pain in his knees, limit the knee bends to a slight dip or omit them entirely.

The Knee Bend exercise improves balance, and strengthens the abdominal and quadricep muscles.



Arm Circles

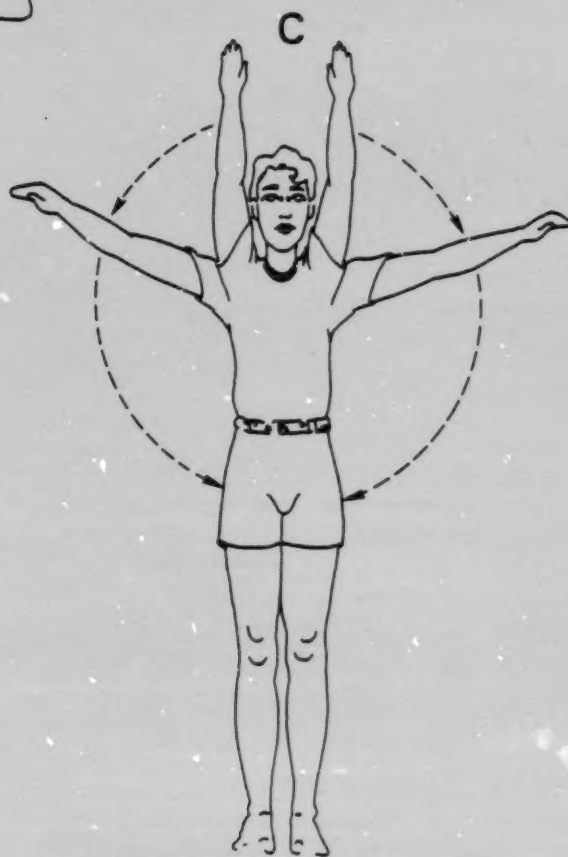
Forward

- Step 1. Stand with the feet shoulder width apart.
- Step 2. The arms and hands hang straight at the sides of the body.
- Step 3. Lift the arms straight up in front of the body to shoulder height (Count of 1) and inhale (Figure A).
- Step 4. Lift the arms straight above the head (Count of 2) and complete breathing in (Figure B).
- Step 5. Lower the arms to the back of the body to shoulder height (Count of 3) and exhale (Figure C).
- Step 6. Lower the arms to the original position (Count of 4) and complete breathing out. If dizziness occurs, stop deep breathing and momentarily rest before the next exercise.
- Step 7. Repeat 8 times.

Reverse

- Step 1. Stand with the feet shoulder width apart.
- Step 2. The arms and hands hang straight at the sides of the body.
- Step 3. Lift the arms to the back of the body to shoulder height (Count of 1) and inhale.
- Step 4. Lift the arms straight above the head (Count of 2) and complete breathing in.
- Step 5. Lower the arms straight out in front of the body to shoulder height (Count of 3) and exhale.
- Step 6. Lower the arms to the original position (Count of 4) and complete breathing out. If dizziness occurs, stop deep breathing and momentarily rest before the next exercise.
- Step 7. Repeat 8 times.

The Arm Circles exercise will help maintain or increase shoulder range of motion, increase breathing capacity, and improve coordination on both sides of the body. Correct posture should be maintained while performing this exercise. Often, there is a tendency to permit the back to sway when the arms are carried to the back. The student should contract the abdominal muscles and buttocks to maintain correct posture.

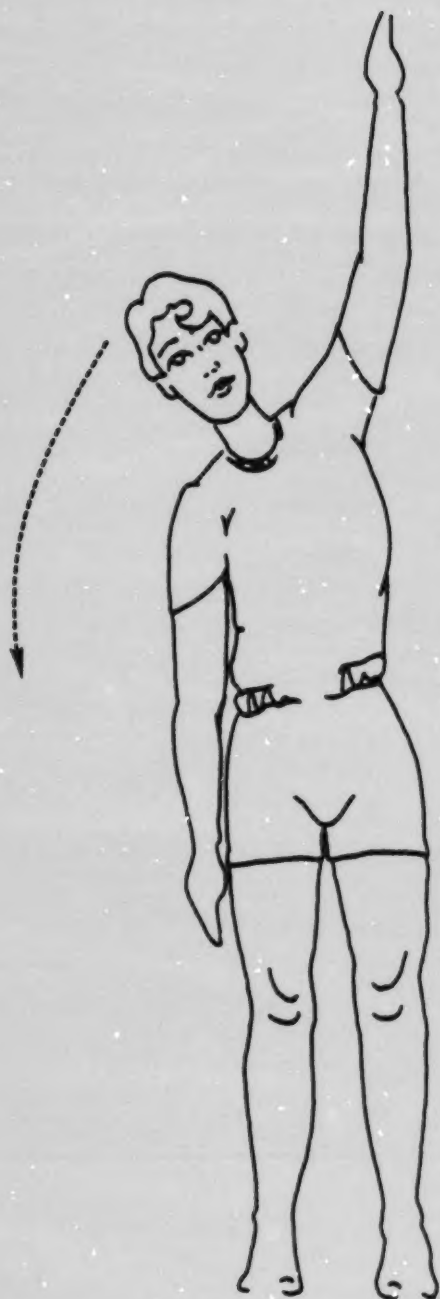


Side Stretch

- Step 1. Stand with the feet spaced shoulder width apart. Toes should be positioned straight in front of the body.
- Step 2. Assume correct posture.
- Step 3. Extend arms straight out to the sides at shoulder height.
- Step 4. Bend the upper torso sideways to the right as far as possible. Keep the right shoulder aligned with the right hip. Avoid letting the upper torso fall forward.
- Step 5. The left arm should be pointed straight up to the ceiling. The right arm should be extended toward the floor and positioned beside the right leg.
- Step 6. Keeping both feet flat on the floor, bend comfortably to the right as far as possible.
(Steps 4-6 are to the count of 1)
- Step 7. Return to original position assumed in step 1-3.
(Step 7 is to the count of 2)
- Step 8. Repeat the entire sequence with the right arm.
- Step 9. Repeat 8 stretches on each side of the body.

The Side Stretch exercise stretches the waist and thighs. The student should be encouraged to bend to the side as far as possible without undue discomfort.

This exercise puts some strain on the small muscles in the lower back. Therefore, for individuals with low back pain or back deformities, it may be advisable to omit this exercise.



Sit Down on the Floor

- Step 1. Stand with the feet together.
- Step 2. Bend both knees. Lower the body to a crouched position keeping the trunk erect. Place hands on the floor between the legs (Figure A).
- Step 3. Lower the dominant knee to the floor (right or left) (Figure B).
- Step 4. With both hands supporting the upper-body weight on the floor, a crawling position will be assumed (Figure C).
- Step 5. Swing the hips toward the floor using the dominant side of the body. Place the body weight on the side of the dominant thigh and hip (Figure D).
- Step 6. Roll the hips to a sitting position. The non-dominant hand will lift off the floor. (Figure E).
- Step 7. Stretch the legs out in front of the body.
- Step 8. Repeat 5 times and alternate sides.

This series of movements provides a safe, easy method of sitting on the floor and eliminates jarring of the spine which often occurs when the student flops down on the floor.

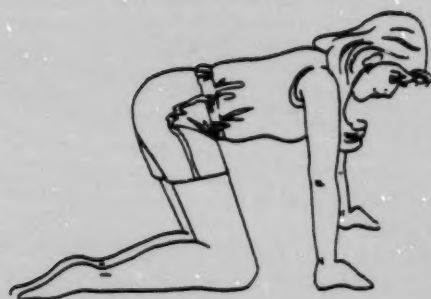
The purpose of the Sit Down on the Floor exercise is to increase flexibility and coordination of the trunk. This method should be used each time the student sits on the floor. These movements may also be used with a Rise from the Floor exercise.



A



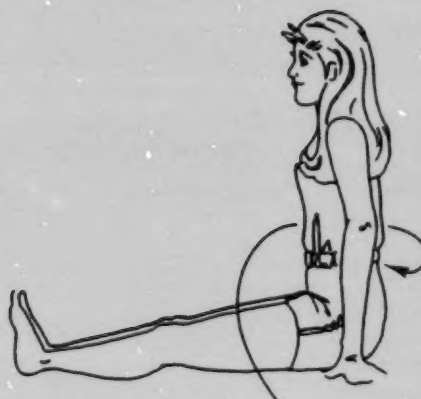
B



C



D



E

Diaphragmatic Breathing

- Step 1. Sit cross-legged (Indian style) on the floor with the back straight, eyes forward and chin up.
- Step 2. Clasp both hands in a fist. Place both fists on the chest over the lower edge of the rib cage (Figure A).
- Step 3. To a slow count of ten (one count per second) breathe in as much air as possible. While inhaling, lift the chin, straighten the spine, and press the shoulders and elbows back.
- Step 4. Then to a slow count of ten, breathe out as much air as possible. While exhaling, bring the shoulders and elbows forward, bend the neck and spine forward, and press in with the hands on the ribs to press out as much air as possible (Figure B).
- Step 5. Repeat 6 times.

The Diaphragmatic Breathing exercise should be done very slowly to assure maximum inspiration and expiration while avoiding hyperventilation. If the student becomes dizzy during this exercise, have him stop the exercise at once.

The purpose of the Diaphragmatic Breathing exercise is to increase breathing capacity, especially in the lower lobes of the lungs, and to improve posture.



A



B

Floor Leg Stretch/Feet Together

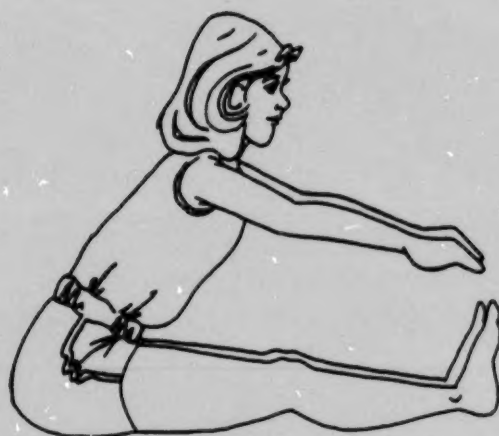
- Step 1. Sit down on the floor.
- Step 2. Stretch the legs straight out in front of the body with the back of each knee pressed flat against the floor.
- Step 3. Sit with the back very straight.
- Step 4. Keep the feet flexed at the ankles so the toes are pointing straight up.
- Step 5. Place the hands on the hips (Figure A).
- Step 6. Stretch hands toward the feet keeping the back of the knees on the floor during the stretching movement (Count of 1) (Figure B).
- Step 7. Straighten the body to the original position.
- Step 8. Return the hands simultaneously to the hips as the exercise is completed (Count of 2).
- Step 9. Repeat the exercise 10 times.

The Floor Leg Stretch/Feet Together exercise stretches the calves, thighs, and lower back.

It is important to keep the back of the knees flat on the floor while stretching forward. Instruct the student to reach toward the feet until the knees start to flex (lift off the floor). Maximum stretch has been reached when this occurs. Next, the student should straighten his body and return his hands to the hips. The muscles will gradually stretch to enable the student to keep his knees flat on the floor. Avoid rocking toward the feet in an attempt to extend the stretch. Rocking or bouncing forward puts strain on the muscles of the back.



A



B

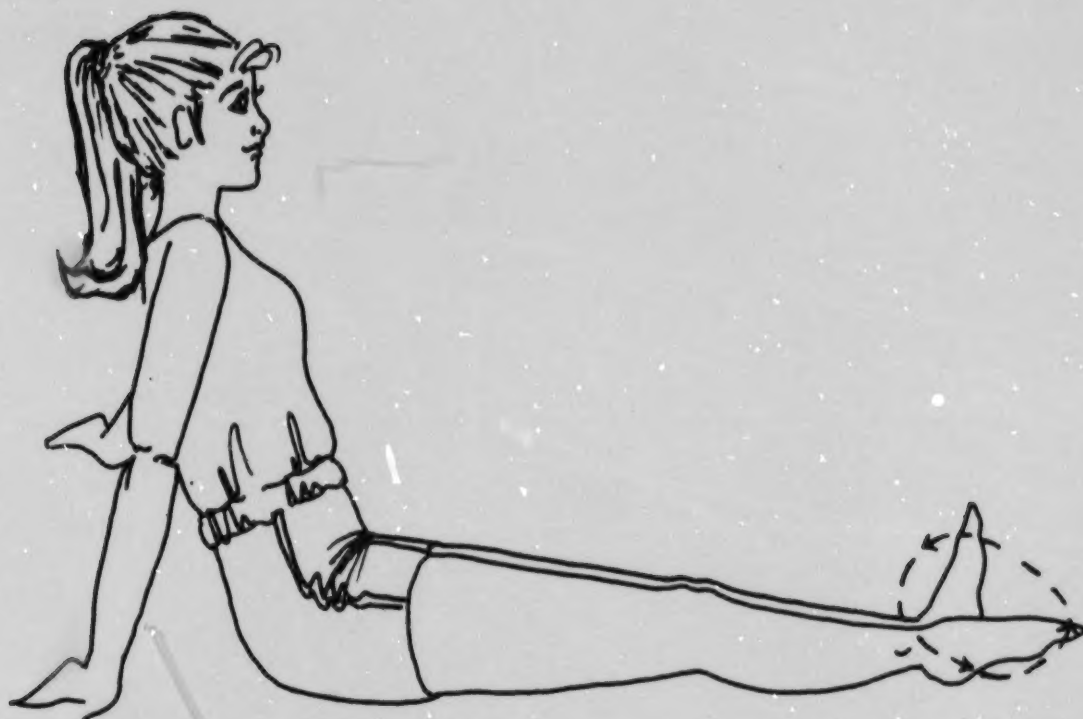
Ankle and Foot Stretch and Flexion

- Step 1. Sit on the floor with the back held as straight as possible.
- Step 2. Place hands on the floor approximately 6 to 8 inches behind the hips.
- Step 3. Place the legs together straight out in front of the body.
- Step 4. Keep the heels positioned on the floor. Point the right toe down toward the floor and flex it back.
- Step 5. Then move it around in a large circle. Avoid rolling the leg to the side or bending it at the knees. When this exercise is performed correctly, the heel slides on the floor.
- Step 6. Reverse the direction the foot is moving and make a large circle with the toes in the opposite direction.
- Step 7. Repeat with the left foot.

The purpose of the Ankle and Foot Stretch and Flexion exercise is to strengthen the calves and maintain or increase the range of motion and flexibility.

Perform the circles with the right foot for 4 complete sets, then perform 4 complete circles with the left foot. Each week add 2 additional complete sets until each ankle and foot exercise is performed 16 times during a session.

Present each exercise 4 times on the right, then 4 times on the left while working toward the goal of 16 sets. This permits the muscles of one ankle, foot, and leg to relax while the other is working.



Head Roll

- Step 1. Stand with the correct posture.
- Step 2. Keep the shoulders even.
- Step 3. Drop the head forward with the chin pressed toward the chest (Count of 1) (Figure A).
- Step 4. Let the head roll to the right as far as possible (Count of 2) (Figure B).
- Step 5. Roll the head to the back as far as possible. The chin will be lifted (Count of 3) (Figure C).
- Step 6. Roll the head to the left as far as possible (Count of 4) (Figure D).
- Step 7. Reverse to the left.

The purpose of the Head Roll exercise is to loosen the neck muscles.

This exercise should be performed as a continuous movement. Perform to the right one full circle then reverse to the left for a total of 3 complete circles to the right and 3 complete circles to the left.



A



B



C



D

Rise from the Floor

- Step 1. Sit on the floor with the legs stretched in front of the body.
- Step 2. Place one or both hands on the floor beside the dominant hip (Figure A).
- Step 3. Bring the non-dominant leg over the dominant leg. Place the non-dominant foot flat on the floor.
- Step 4. Swing the body to a one-leg kneeling position on the dominant knee and non-dominant foot. The dominant hand should remain on the floor. The non-dominant hand should assist only when needed (Figure B).
- Step 5. Shift the body weight over to the non-dominant leg and rise to a standing position. Keep the trunk erect (Figure C).
- Step 6. Repeat the exercise for the non-dominant side of the body.

The Rise from the Floor exercise strengthens the calf muscles and maintains and/or increases range of motion, balance and flexibility.

The Rise from the Floor exercise can also be paired with the Sit Down on the Floor exercise as part of the warm-up program. The student should perform the complete series 5 times during the warm-up and should alternate sides.



A



B



C

Lunge

- Step 1. Place the hands on the hips and stand with both feet together.
- Step 2. Contract the abdominal muscles and buttocks.
- Step 3. Step forward with the right foot keeping the right knee bent.
- Step 4. Extend the hands and arms straight out in front of the shoulders.
- Step 5. Keep the left foot stationary with the left heel firmly placed on the floor and point the toe forward.
- Step 6. Keep the left knee locked.
- Step 7. The weight of the body should be shifted to the right foot as the hands are extended.
(Steps 1-2 are to the count of 1. Steps 3-7 are performed simultaneously to the count of 2).
- Step 8. Return the hands to the hips as the right foot is returned to its original position.
- Step 9. Repeat 5 times with each leg.

The purpose of the Lunge exercise is to stretch the calf muscle and achilles tendon of the rear leg.

The exercise should be done slowly. The student should be encouraged to take longer lunge steps as the body parts become flexible. In order to check whether the exercise is being performed correctly, ask the student if he feels a pulling sensation in the calf of the rear leg.



CHAPTER IV

AEROBICS FOR TOTAL FITNESS

The body cannot be considered totally fit unless all parts are functioning at their maximum potential. The warm-up exercises, developmental exercises, and cool-down stretches provide a workout for the muscle and skeletal systems of the body. However, another very important part of the body, the cardiovascular system, requires a sustained level of movement to enable the system to develop its maximum level of functioning.

Sustained exercising such as walking at a medium to fast pace, jogging, jumping, climbing or cycling is called aerobics. The objective of aerobics is to give the heart, lungs, and blood vessels a workout. In order to accomplish this goal, the aerobic exercise must be performed continuously for at least 10 minutes. The aerobic exercise should be performed at a speed that requires an increase in effort and muscle. The instructor may be cued to have the student perform a particular exercise at a set count. This means that each time a foot hits the floor, one count is recorded.

Aerobics are enjoyable to perform to the accompaniment of rhythmic music. A medium to fast cadence available in most disco, pop, or country/western music is ideal. The music will provide a proper amount of motivation to continue the activity until the required time has expired.

The aerobic exercises, prior to each developmental exercise program, are to be performed first before continuing on with the subsequent exercises for each level. During the beginning portion of the program, the student will be required to walk without stopping for ten minutes. After the student can accomplish 10 minutes of sustained walking, he will be required to combine walking, jogging, and jumping for the intermediate exercise program. The advanced exercise program will require a combination of walking and jogging in place as well as jumping and jumping with feet apart and close for a continuous 10 minute interval.

When the aerobics program is begun, the student may experience muscle fatigue in the legs. The discomfort will subside as muscle strength increases. It is important to encourage the student to keep going the entire 10 minutes to develop the ability to perform aerobics without becoming breathless and fatigued.

This part of the exercise program can be very beneficial for all students including those with heart or respiratory difficulties. However, the program should always have the physician's approval for each student. The strenuousness of the program must be slowly and steadily increased while carefully monitoring its effect on all students.

The pulse may be monitored by counting the number of beats in the large artery of the neck. The pulse should fall below 120 beats per minute within five minutes after ceasing to exercise. If the pulse rate remains higher than 120 beats per minute, cut back on the length of the exercise session and slow its rate. Immediately stop exercising if the student experiences pain, dizziness, nausea, or severe breathlessness. Any student suffering an acute illness, including a cold, should be excused from the exercise session until he has completely recovered.

When a student is able to perform the entire advanced exercise program, he will be well on the way to cardiovascular fitness. The advanced program will provide approximately half the aerobic exercise the student needs if the program is performed five days a week. In many settings, recreational activities such as swimming, basketball, running, or other sports will be available to promote cardiovascular fitness and supplement this program. However, in those settings where students do not participate in vigorous physical activities outside of the exercise class, the advanced aerobics portion of the exercise program should be lengthened by one minute each week until the aerobics portion is 20 minutes long. In this manner, all students can reach a point of healthy cardiovascular fitness.

BEGINNER AEROBIC PROGRAM

The Beginner Aerobic Program uses the heel-and-toe method of walking correctly to strengthen the calf muscles and the muscles in the feet. Maintaining correct body posture (placement) will permit the internal organs to function naturally during the exercise.

It is recommended that the walk be performed using a moderate, steady cadence to a count of 16. The student will naturally form his own rhythm of body movement to fit the cadence. Keep it relaxed and enjoyable. Try to work up to 10 minutes of walking a day.

Walking inside the classroom can be made more enjoyable by using objects to form obstacle courses, choosing different leaders, or walking with partners. The instructor and student should use their imaginations to best utilize their walking space. The walkers should change directions after each three minute interval of music to help avoid dizziness and boredom.

Aerobic Walking

- Step 1. Assume the correct posture. Keep the shoulders loose and carry the arms low. The weight of the body should be balanced between the ball of each foot and heel or slightly more over the ball of each foot. Try to point the foot straight ahead.
- Step 2. Relax the body. Keep the knees slightly bent to absorb shock as the foot strikes the floor.
- Step 3. Lift the dominant foot and bring it forward. Keep the dominant foot pointed straight ahead.
- Step 4. Place the heel of the dominant foot on the floor and allow the body weight to roll to the ball of the foot and the toes.
- Step 5. Shift the body weight forward on the dominant foot. Slightly bend the dominant knee.
- Step 6. As the dominant foot strikes the floor, the weight is shifted.
- Step 7. The non-dominant foot will be flexed to the ball of the foot.

Continue the sequence of heel-and-toe walking. Let the arms swing with each step, but keep the shoulders in a relaxed position to avoid fatigue in the shoulder and neck muscles. Use as wide a stride as possible while maintaining good posture. This provides better balance as less muscle activity is needed to support the body. The student will be able to walk longer distances without tiring.



INTERMEDIATE AEROBIC PROGRAM

Walk/Jog in Place/Jump

For the intermediate series of aerobic exercises, walk for 16 counts and jog in place for another 16 counts. Complete the routine with the jumping exercise, again to a count of 16. After the student is able to complete the 10-minute walk described in the Beginner Aerobic program, he should begin with four minutes of the Intermediate Aerobic Program which consists of the Walk/Jog in Place/Jump exercises. Add two minutes to the program each week until the program can be carried out for ten full minutes.

The Intermediate Aerobic Program improves balance, flexibility, and strength in the back, legs, and feet, increases body control, and stimulates cardiovascular activity.

Jog in Place

*See Foot Press/Knee Lift exercise for details on body posture (p. 58).

- Step 1. Let the arms hang loosely at each side. The arms may swing during the knee lifts.
- Step 2. The dominant foot will lift off the floor by lifting the heel first and moving to the ball of the foot and toes. Lift the dominant knee high in front of the body (Count of "and").
- Step 3. Simultaneously, return the ball of the foot to the floor and the heel will follow to a flat foot position (Count of 1).
- Step 4. Repeat the sequence with the non-dominant foot and knee (Count of "and" 2).

The students may think of this exercise as rapid marching in place. Perform the Walk/Jog in Place exercise using a moderate to fast cadence.



Jump

- Step 1. Stand with the feet 4-6 inches apart. The feet should be turned out to the side at a 45 degree angle.
- Step 2. Assume the correct posture.
- Step 3. Place the hands on the hips.
- Step 4. Bend the knees slightly. Keep the small of the back straight and avoid letting the buttocks stick out (Figure A).
- Step 5. Contract the abdominal muscles. Keep the shoulders even. Avoid hunching the shoulders.
- Step 6. Inhale a breath and lift the body into the air by pushing with the feet. The feet should roll from a flat position on the floor to the balls of the feet in order to help push the body into the air (Figure B). The balls of the feet should be pointing downward as the body is raised off the floor (Figure C). The body should be held in the correct body position while in the air.
- Step 7. Land on the balls of the feet and immediately roll to a flat foot position as the knees bend (Step 4). Exhale as this step is performed.

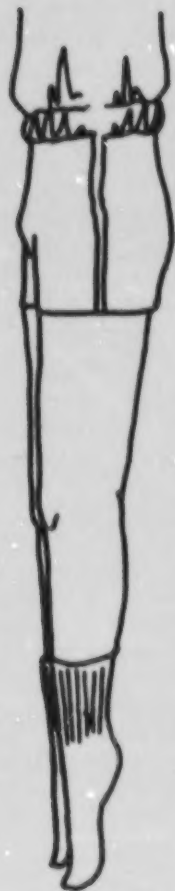
It is very important to train slowly so that the student develops the correct technique. Using the foot correctly in landing and bending the knees will prevent the spine from jarring. Sprained ankles can be prevented by working the foot correctly and bending the knees. Inhaling as the body is lifted and exhaling during landing will aid the student in learning body control.



A



B



C

ADVANCED AEROBIC PROGRAM

Walk/Jog in Place/Jump/Jumping-Foot Apart/Close

Repeat the Walk/Jog in Place exercise and the Jump exercise as described in the Intermediate Aerobics section. Add the Jumping-Foot Apart/Close exercise following the Jump exercise for 16 counts. The Advanced Aerobics Program should be started when the student is able to perform the Intermediate Aerobics Program for the full 10 minutes. The Advanced Aerobics Program should initially be performed for six minutes. Add two minutes each week if the student is able until the Advanced Aerobics Program can be performed for a full 10 minutes.

The sustained exercising at the advanced aerobic level not only stimulates cardiovascular activity, but also strengthens the muscles in the back, legs, and feet, improves balance and flexibility, increases endurance of the various muscle groups, and improves body control.

Jumping-Feet Apart/Close

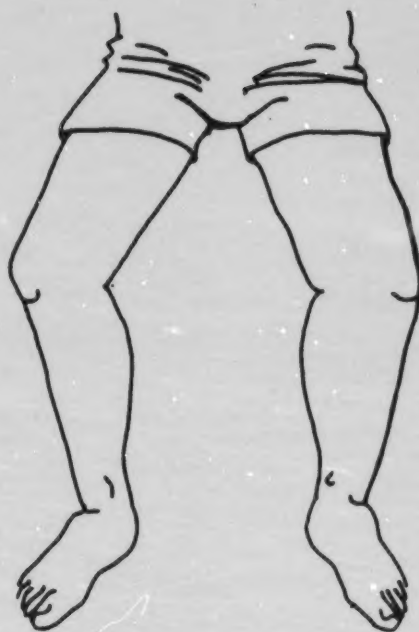
- Step 1. Stand with the heels together. The feet should be turned out at a 45 degree angle.
- Step 2. Place the hands on the hips.
- Step 3. Bend the knees. Contract the abdominal muscles and buttocks.
- Step 4. Bend the knees slightly (Figure A). Keep the small of the back straight by contracting the abdominal muscles. Avoid letting the buttocks stick out. Keep the shoulders in the correct posture. Avoid hunching.
- Step 5. Inhale and lift the body into the air by pushing on the feet. The feet roll from a flat position on the floor to the balls of the feet in order to push the body into the air. The toes should be pointed downward when off the floor. The body should be held in the correct body posture position (Figure B).
- Step 6. When the feet are as high off the floor as possible, open the feet apart approximately 8 to 12 inches.
- Step 7. With the feet apart, land on the front balls of the feet (Figure C) and immediately roll from the balls of the feet to a flat foot position as the knees bend. Exhale during this step.
- Step 8. Repeat the jumping procedure with the feet positioned apart as in Figure C. Inhale and lift the body into the air by pushing on the feet. Roll the feet from a flat foot position to the balls of the feet and push the body into the air. The toes should be pointed downward when the body is suspended in air. Correct posture should be maintained while the body is in the air.
- Step 9. Pull the feet together while the body is suspended in air (Figure B).
- Step 10. Land on the balls of the feet with the feet close together as the knees are bending (Figure A). Keep the abdominal muscles and the buttocks contracted to maintain correct posture. Straighten the legs and exhale as this step in jumping is performed. The feet will return to the original position in Step 1.



A



B



C

CHAPTER V
BEGINNER EXERCISES

	Repetitions
1. Foot Press/Knee Lift	8 (each foot)
2. Jump	16
3. Push-Up to Knees	4
4. Rear Leg Lift	5 (each side)
5. Shoulder Lift	16
6. Cat Stretch	16
7. Curl Up and Down	5
8. Sitting Twister	8 (both directions)
9. Hip Twist	16

It is recommended that the beginner exercises be presented in the sequence outlined above. The primary purpose of the beginner level exercise program is to develop strength and control of body movement and to condition the muscles for the more advanced exercises.

Foot Press/Knee Lift

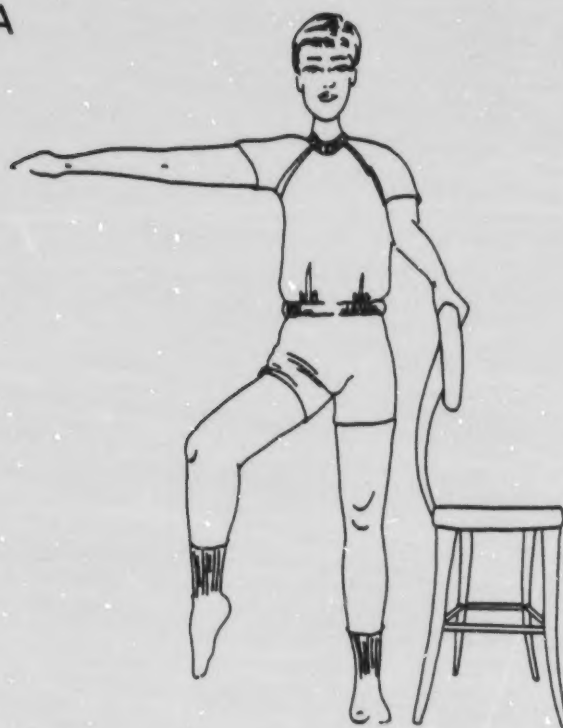
- Step 1. Stand with the feet at a 45 degree angle and 6 inches apart. Assume the correct posture.
- Step 2. Extend the arms out to the sides to help with balance. It is recommended that the student use a chair back, wall, exercise barre or a fellow student's shoulder to aid balance. Grasp the support with the left hand.
- Step 3. Lift the right heel off the floor as the right knee bends.
- Step 4. Press the ball of the right foot against the floor (Count of 1) (Figure A).
- Step 5. Lift the right foot off the floor and point the toes toward the floor. Try to lift the right knee as high as the waist (Count of 2). Simultaneously, grip the floor with the toes of the left foot. Tighten the muscles in the thighs. Keep the knee straight. Keep the body weight lifted out of the pelvis cradle (Figure B).
- Step 6. Lower the foot to the ball of the foot (Count of 3).
- Step 7. Place the foot flat on the floor.
- Step 8. Repeat 8 times for each foot to form a set of 16 press/lifts.

The Foot Press/Knee Lift exercise strengthens the foot, ankle, and leg while the student learns to work separate parts of the foot. Tightening the muscles of the leg that supports the body helps the student learn how to maintain balance while the other foot is off the floor. Eventually, the increased muscle strength and intellectual understanding of how to control the body permits the student to balance without holding on to a support. The Foot Press/Knee Lift prepares the student for jumping and balancing movements.

After the student can correctly perform the exercise, alternate 1 press/lift with the right foot/knee and 1 press/lift with the left knee until each side is exercised 8 times.



A



B

Jump

- Step 1. Stand with the feet 4-6 inches apart. The feet should be turned out to the side at a 45 degree angle.
- Step 2. Assume the correct posture.
- Step 3. Place the hands on the hips.
- Step 4. Bend the knees slightly. Keep the small of the back straight and avoid letting the buttocks stick out (Figure A).
- Step 5. Contract the abdominal muscles. Keep the shoulders even. Avoid hunching the shoulders.
- Step 6. Inhale a breath and lift the body into the air by pushing with the feet. The feet should roll from a flat position on the floor to the balls of the feet in order to help push the body into the air (Figure B). The balls of the feet should be pointing downward as the body is raised off the floor (Figure C). The body should be held in the correct body position while in the air.
- Step 7. Land on the balls of the feet and immediately roll to a flat foot position as the knees bend (Step 4). Exhale as this step is performed.

The purpose of the Jump exercise is to develop strength in the back, legs and feet. The student will learn how to control the body during any jumping movement performed in this exercise program or during recreation.

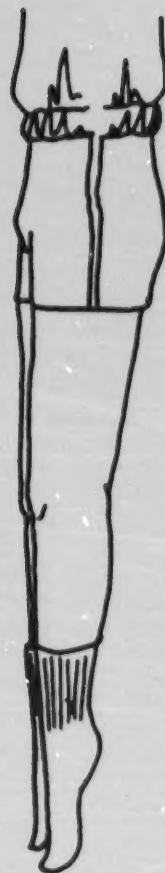
It is very important to train slowly so that the student develops the correct technique. Using the foot correctly in landing and bending the knees will prevent the spine from jarring. Sprained ankles can be prevented by working the foot correctly and bending the knees. Inhaling as the body is lifted and exhaling during the landing will aid the student in learning body control.



A



B



C

Push-Up to Knees

- Step 1. Lower the body to a position lying on the floor face down.
- Step 2. Place both hands on the floor with the palms down. The palms should be near the shoulders, but not directly under them.
- Step 3. Keep the elbows near the body and push upward to lift the shoulders and front part of the body from the floor. The knees should remain on the floor. Keep the back straight and do not allow the hips to sag forward.
- Step 4. The student should continue looking at the floor so that the head does not tip back. Do not allow the elbows to push away from the body at an angle. The weight should be carried evenly by the whole arm.
- Step 5. Lower the body to the floor, keeping the elbows close to the body.
- Step 6. Repeat 4 times. Gradually, increase the number of push-ups to 16.

The Beginner Push-Up to Knees exercise will increase shoulder and arm strength and will improve the coordination of the two sides of the body.

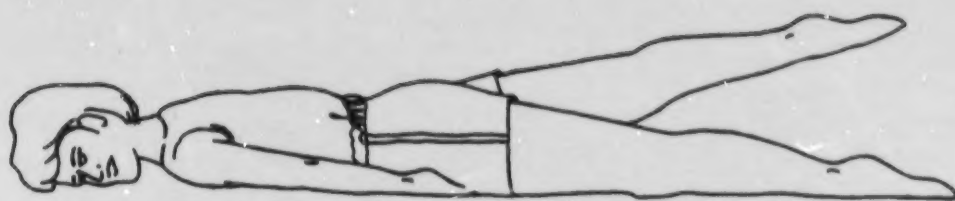


Rear Leg Lift

- Step 1. Lie on the floor, face down, with the arms straight beside the body.
- Step 2. Lift one leg toward the ceiling, keeping the abdominal and seat muscles tight. Do not allow the student to arch his lower back in order to lift the leg (Count of 1). It is not important to lift the leg very high, but it is important to keep the back flat, with the pelvis pressed to the floor.
- Step 3. Return the leg to the floor (Count of 2).
- Step 4. Repeat the exercise with the other leg.
- Step 5. Repeat 5 times on each side. Eventually, work up to 10 repetitions.

The Rear Leg Lift exercise strengthens and firms the buttocks and increases the range of motion of the hip flexors.

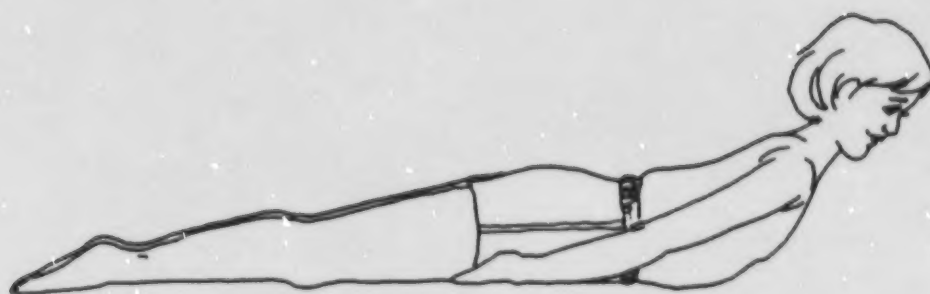
If this exercise causes any discomfort in the lower back, seat or leg, have the student place his arms or a small pillow under his stomach just below his belly button. If he still is uncomfortable, try to progress to the next exercise in this series.



Shoulder Lift

- Step 1. Lie face down on the floor with the arms straight beside the body.
- Step 2. Raise the head and shoulders from the floor (Count of 1). Keep looking at the floor so the head does not tilt back.
- Step 3. Lower the head and shoulders back to the floor (Count of 2).
- Step 4. Repeat 16 times.

The Shoulder Lift exercise strengthens the muscles which straighten the head and shoulders in standing for improved posture.



Cat Stretch

- Step 1. Lower the body to a hands and knees position on the floor.
- Step 2. Throughout the exercise, keep the head level with the body and keep looking at the floor. Do not allow the head to tilt back.
- Step 3. Allow the abdomen to sag slightly (Count of 1) (Figure A).
- Step 4. By tightening the abdominal and seat muscles, raise the lower back and tuck the seat in and under (Count of 2) (Figure B).
- Step 5. Relax the muscles allowing the abdomen to sag. This can be accomplished by strongly contracting the abdominal muscles while arching the lower back area. Do not arch the upper back during this exercise. The movement should be mostly in the hips.
- Step 6. Repeat 16 times.

The Cat Stretch exercise strengthens the lower abdominal muscles and buttocks and increases lower back mobility in order to improve posture.



A



B

Curl Up and Down

- Step 1. Lie on the back on the floor.
- Step 2. Flex the knees at a 90 degree angle. Keep the feet flat on the floor.
- Step 3. Fold the arms across the stomach.
- Step 4. Contract the abdominal muscles. Curl the head and shoulders off the floor (Count of 1).
- Step 5. Return to the original position (Count of 2).
- Step 6. Repeat 5 times.

The Curl Up and Down exercise strengthens the upper abdominal muscles and teaches correct posture of the lower back.

Because the muscles of the neck are strained during the curl up, it is recommended that a five-second rest follow 5 repetitions of the exercise before performing additional exercises. The student should perform no more than 10 repetitions during an exercise session.



Sitting Twister

- Step 1. Sit on the floor with the feet and legs placed on the floor in front of the body. The feet should be 12 inches apart.
- Step 2. Keep the back straight.
- Step 3. Lift the hands and arms in front of the body 4-6 inches above the knees.
- Step 4. Swing the hands to the right as far as possible. Twist the shoulders to the right while looking straight ahead. All movements are performed simultaneously (Count of 1).
- Step 5. Return to the original position (Count of 2).
- Step 6. Reverse the exercise to the left.
- Step 7. Repeat 8 times in each direction. Do not exceed 8 times without a five-second rest between additional sets.

The Sitting Twister exercise helps the student learn to move multiple body parts as one unit. Flexibility of the upper torso will improve and will prepare the student for twisting exercises in a standing position.

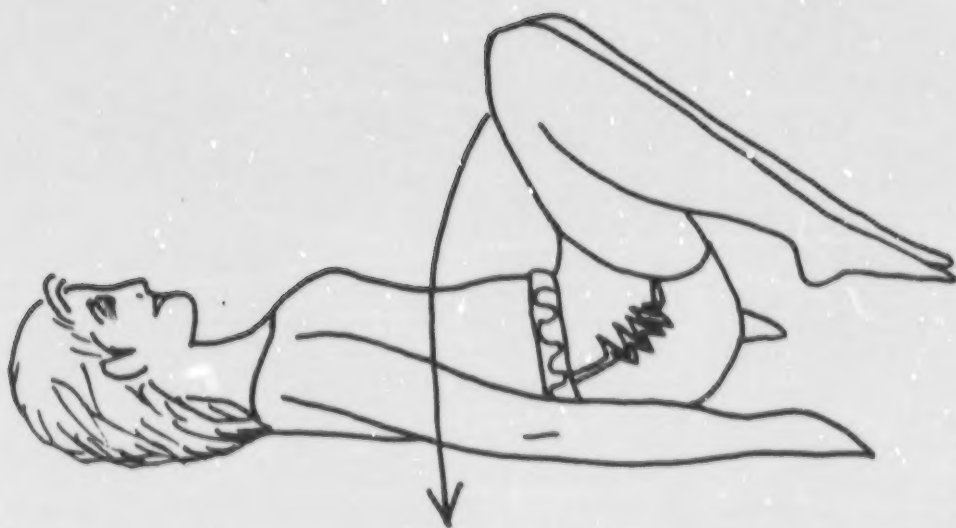
If the student has difficulty performing the exercise in a coordinated manner, he may clasp his hands together while doing the exercise.



Hip Twist

- Step 1. Lie on the floor on the back with both arms extended by the sides of the body.
- Step 2. Bend the hips and knees up and lift the knees to the chest, curling the lower back.
- Step 3. Keeping the shoulders and arms in place on the floor, slowly roll the hips and legs to the right until the legs touch the floor (Count of 1).
- Step 4. Roll the legs back into the position described in Step 2 (Count of 2).
- Step 5. Roll the legs and the hips to the left until they touch the floor (Count of 3).
- Step 6. Return to the starting position (Count of 4).
- Step 7. Repeat 16 times.

The Hip Twist exercise strengthens the oblique abdominal muscles and mobilizes the lower back. The exercise will also increase trunk rotation.



CHAPTER VI
INTERMEDIATE EXERCISES

	Repetitions
1. Standing Leg Lift/Arm Extension	5 (each leg)
2. Jumping—Feet Apart/Close	16
3. Arm Walk	5
4. Rear Leg Lift on Knees	4
5. Raise Head and Shoulders	8
6. Knee Lifts to Chest (Lying Down)	8 (each leg)
7. Bent Knee Sit-Up	4
8. Sitting Windmill	8 (both directions)
9. Sitting Leg Twist	7

Standing Leg Lift/Arm Extension

- Step 1. Stand with the feet about 4 inches apart. Maintain the correct posture.
- Step 2. Extend the arms out from the shoulders in front of the body.
- Step 3. Contract the abdominal muscles.
- Step 4. Tighten the left leg muscles and the left buttock.
- Step 5. Shift the weight to the left leg. Keep the hips even by concentrating on keeping the body weight lifted out of the pelvic cradle.
- Step 6. Point the right toes about 12 inches forward of the original position (Figure A). Keep the muscles tightened and the knees locked. Toes must rest lightly on the floor as the body weight is balanced over the heel of the left foot (Count of 1). Again, keep the hips even.
- Step 7. Inhale slowly and pull the abdominal muscles inward toward the back. Lift the right foot as high as possible while keeping both legs straight (Figure B) (Count of 2).
- Step 8. Lower the right foot to the position described in Step 6 (Figure A) (Count of 3).
- Step 9. Return the right foot and arms to the original position (Count of 4).
- Step 10. Lift each leg 5 times during the first week. Add 2 more leg lifts a week until 10 lifts can be performed while maintaining the correct body placement.

The Standing Leg Lift/Arm Extension exercise strengthens the leg and abdominal muscles and may lengthen shortened hamstring muscles. The student will learn how to balance on one leg while the other leg is working. The end result is improved body posture.



A



B

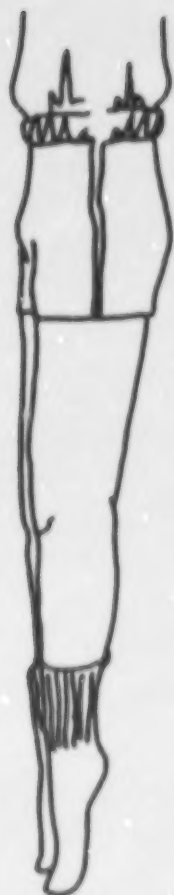
Jumping—Feet Apart/Close

- Step 1. Stand with the heels together. The feet should be turned out at a 45 degree angle.
- Step 2. Place the hands on the hips.
- Step 3. Bend the knees. Contract the abdominal muscles and buttocks.
- Step 4. Bend the knees slightly (Figure A). Keep the small of the back straight by contracting the abdominal muscles. Avoid letting the buttocks stick out by squeezing the muscles. Keep the shoulders held in the correct posture. Avoid hunching.
- Step 5. Inhale and lift the body into the air by pushing on the feet. The feet roll from a flat position on the floor to the balls of the feet in order to push the body into the air. The toes should be pointed downward when off the floor. The body should be held in the correct posture position (Figure B).
- Step 6. When the feet are as high off the floor as possible, open the feet apart approximately 8 to 12 inches.
- Step 7. With the feet apart, land on the front balls of the feet (Figure C) and immediately roll from the balls of the feet to a flat foot position as the knees bend. Exhale during this step.
- Step 8. Repeat the jumping procedure with the feet positioned apart as in Figure C. Inhale and lift the body into the air by pushing on the feet. Roll the feet from a flat foot position to the balls of the feet and push the body into the air. The toes should be pointed downward when the body is suspended in air. Correct posture should be maintained while the body is in the air.
- Step 9. Pull the feet together while the body is suspended in air (Figure B).
- Step 10. Land on the balls of the feet with the feet close together as the knees are bending (Figure A). Keep the abdominal muscles and the buttocks contracted to maintain correct posture. Straighten the legs and exhale as this step in jumping is performed. The feet will return to the original position in Step 1.

The Jumping—Feet Apart/Close exercise stimulates cardiovascular activity, strengthens the muscles in the back, legs and feet, and improves balance and flexibility.



A



B



C

Arm Walk

- Step 1. Stand with the feet about 18 inches apart. Point the toes out at a 45 degree angle.
- Step 2. Contract the abdominal muscles. Keep the trunk erect and squat, bending the hips and knees, but not the waist.
- Step 3. Place the palms of the hands on an imaginary spot on the floor between the knees and directly beneath the shoulders (Figure A).
- Step 4. Keep the chin lifted and focus the eyes straight ahead.
- Step 5. "Walk" forward with the hands. Keep the arms straight. The feet will gradually shift from a flat foot position to the balls of the feet and toes (Figure B).
- Step 6. "Walk" forward until the body is full length. Keep the back straight. Avoid letting the hips sag toward the floor (Figure C).
- Step 7. "Walk" back toward the feet. The knees and hips will bend as the feet return to the position in Step 4.
- Step 8. After "walking" forward the required number of times, return to the standing position while keeping the trunk erect.
- Step 9. Repeat 5 times the first week. Add one additional set each week as the student becomes stronger to reach a goal of 10 times per exercise session. A set consists of one "walk" forward and return to original position.

The Arm Walk exercise develops strength, coordination and balance in the trunk, arms, and legs. It is an excellent exercise in strengthening the shoulder and arm muscles.

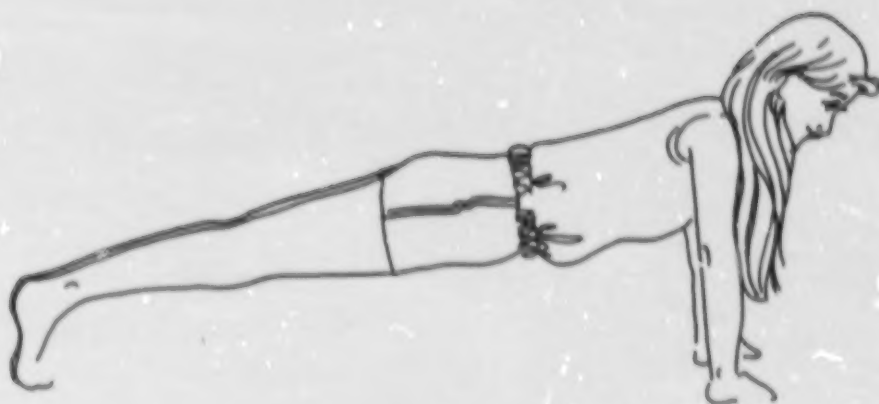
A student may only be able to "walk" forward one-half the distance of the body length at first. Be sure to add more length as strength and confidence improve.



A



B

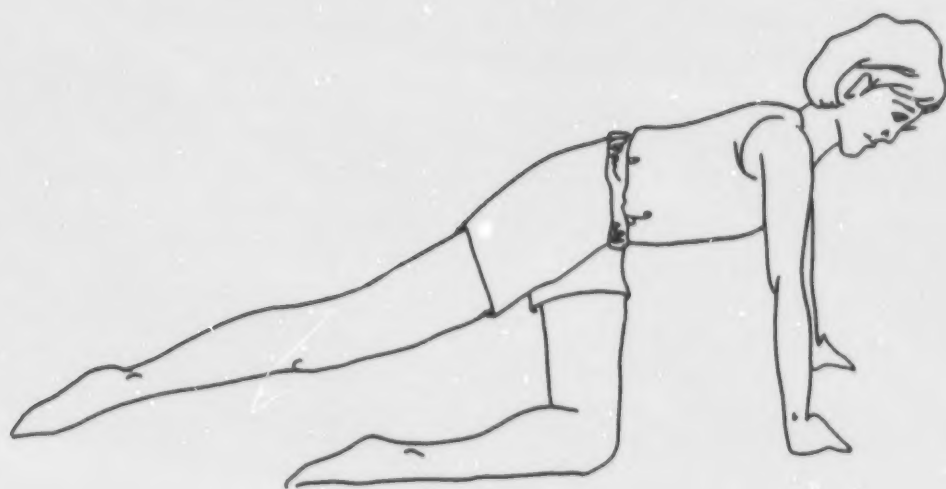


C

Rear Leg Lift on Knees

- Step 1. Assume a hands and knees position on the floor. Tighten the abdominal muscles in order to keep the lower back from swaying. Focus on the floor.
- Step 2. Extend the right leg backwards with the tips of the toes touching the floor (Count of 1).
- Step 3. Lift the foot approximately 1 inch from the floor. Keep the knee straight and be sure the back does not sway.
- Step 4. Return to the starting position (Count of 2).
- Step 5. Repeat the exercise with the left leg.
- Step 6. Repeat 4 times. Work up to 8 repetitions on each side.

The Rear Leg Lift to Hip Height exercise firms the buttocks and provides practice in balance.



Raise Head and Shoulders

- Step 1. Lie on the floor face down with the nose touching the floor.
- Step 2. Place both hands in the small of the back, palms up.
- Step 3. Keeping the nose pointed down towards the floor, raise the head and shoulders off the floor. Hold for a count of 1-2.
- Step 4. Lower the head and shoulders to the floor resting the nose on the floor. The eyes are focused down on the floor. Keep the nose pointed down towards the floor for a count of 3-4.
- Step 5. Repeat 8 times for a total of 32 counts.

The Raise Head and Shoulders exercise strengthens the muscles which straighten the shoulders and neck in the standing position in order to improve posture. A student who holds his head and shoulders erect will move more gracefully and will be more alert to visual stimuli in his environment than one who continually looks down at his feet.



Knee Lifts to Chest (Lying Down)

- Step 1. Lie on the floor with the arms extended toward the feet.
- Step 2. Place the legs on the floor positioned straight out in front of the hips.
- Step 3. Flex both knees and place both feet on the floor with the knees pointing toward the ceiling (Figure A).
- Step 4. Keep the left knee pointing towards the ceiling during the performance of the remaining steps of the exercise.
- Step 5. Press the small of the back against the floor by contracting the abdominal muscles. Hold this position until the exercise is completed.
- Step 6. Lift the right knee across the body and pull it toward the left shoulder as far as possible (Count of 1) (Figure B).
- Step 7. Return the right knee and foot to the original position on the floor as in Step 2 (Count of 2) (Figure A).
- Step 8. Repeat 8 times with each leg. Remember, the left leg will move toward the right shoulder and the right leg will move toward the left shoulder.

The Knee Lifts to Chest exercise strengthens the lower and oblique abdominal muscles. The oblique abdominal muscles are often weak. They will be forced to work by pulling the leg across the chest towards the opposite shoulder.

The student should avoid holding his breath during the performance of the exercise. Instruct the student to exhale as the leg is lifted and inhale as the leg is placed in the original position.



A



B

Bent Knee Sit-Up

- Step 1. Lie on the back on the floor with the knees and hips flexed so that the feet are positioned flat on the floor. The knees and feet should be 8 to 12 inches apart. Do not hold the feet.
- Step 2. Extend the hands directly over the head.
- Step 3. Contract the abdominal muscles.
- Step 4. Lift the hands and the head off the floor without jerking forward. Lift the shoulders off of the floor. Curl the head, shoulders, and back smoothly and slowly toward the knees as far as possible. The hands and arms may be carried to the knees (Count of 1).
- Step 5. Slowly curl the upper body downward toward the floor. Begin by touching the floor with the back of the hips, lower back, shoulder blades, upper shoulders, neck and head. Imagine curling down to the floor vertebra by vertebra. Inhale while in the sitting position. Exhale while curling down. The arms are lowered to the floor over the head. The shoulders touch the floor.
- Step 6. Relax the abdominal muscles.
- Step 7. Repeat 4 times.
 - (a) After the student has mastered the correct technique of the Bent Knee Situp, cross the arms on the chest and increase the repetitions to 8 times.
 - (b) When the exercise is correctly accomplished with the arms crossed on the chest, the student may place the hands behind the head by lacing the fingers together and placing the palms on the back of the head. Repeat 8 times.
 - (c) It is very important that this exercise be performed correctly. The student must curl the upper torso toward the knees. The instructor should make sure the student avoids jerking or snapping the upper torso in an attempt to complete the situp.

The Bent Knee Situp exercise is designed to develop abdominal strength and lower back mobility. Most beginners will not be able to curl completely off the floor. The instructor should stress correct performance rather than stress reaching a sitting position in the early stages of the program. The student will realize the benefits of the exercise when he contracts the abdominal muscles and attempts to curl the head and shoulders off the floor.

Situps should always be performed with the knees bent to avoid placing strain on the lower back. Do not hold the student's feet because this allows him to use hip flexor muscles instead of the abdominal muscles.



Sitting Windmill

- Step 1. Sit on the floor with the back held straight. Contract the abdominal muscles. Toes should point toward the ceiling.
- Step 2. Place the hands on the hips.
- Step 3. Twist the body toward the right foot.
- Step 4. Extend the left hand toward the outside of the right foot. The right hand remains on the hip. Encourage the student to reach as far to the outside of the foot as possible (Count of 1).
- Step 5. Return the left hand to the hip and straighten the body (Count of 2).
- Step 6. Twist the body toward the left foot.
- Step 7. Extend the right hand toward the outside of the left foot. The left hand remains on the hip. Encourage the student to reach as far to the outside of the foot as possible (Count of 3).
- Step 8. Return the right hand to the hip and straighten the body (Count of 4).
- Step 9. Repeat 8 times. Alternate between the right and left sides for a total of 16 repetitions.

The Sitting Windmill exercise will help to develop rotational movements of the trunk—an ability which many developmentally disabled persons lack. This ability will contribute to graceful posture and carriage.

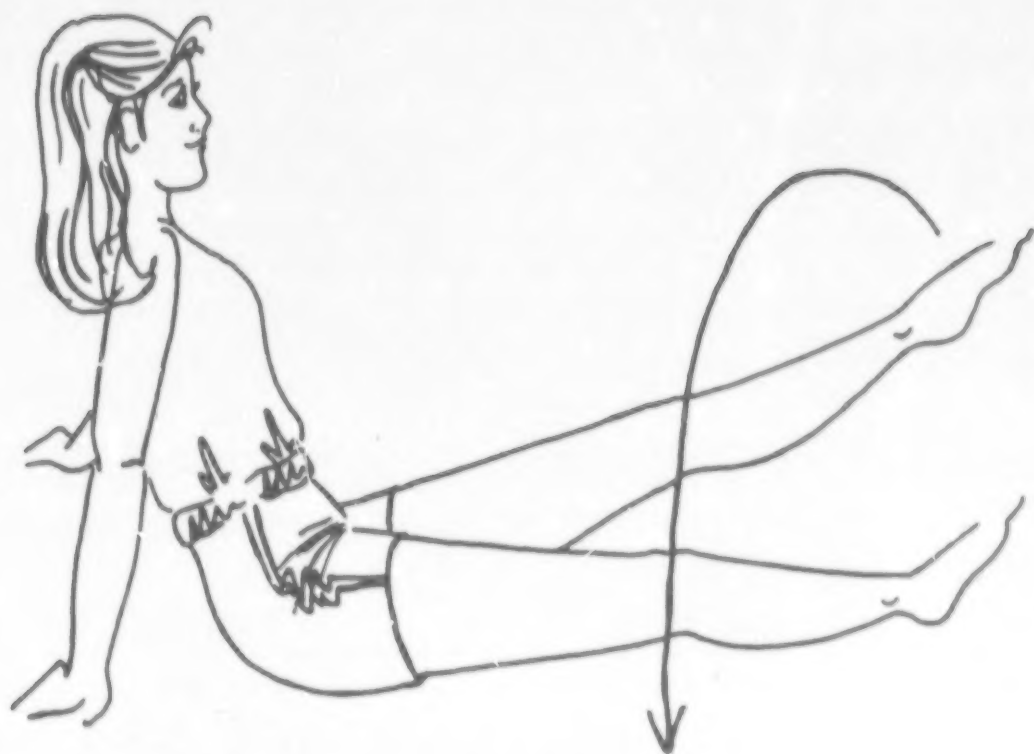
The exercise should be performed slowly and smoothly to avoid confusion. If the student becomes confused with using the opposite hand and foot, attach a colored arm band to the right hand and the same color to the left ankle. The student should be able to match the colored armbands and eliminate the confusion.



Sitting Leg Twist

- Step 1. Sit on the floor with both legs extended straight in front of the body. Keep the trunk erect.
- Step 2. Place both hands approximately 12 inches behind the hips and lean the trunk back on the arms. Keep the arms straight and the trunk erect.
- Step 3. Raise the left leg up. Keep the knee straight.
- Step 4. By twisting the hips, cross the left leg over and across the right leg and touch the left foot to the floor approximately 12 inches beyond the right leg (Count of 1).
- Step 5. Twist the hips back to the sitting position and lower the left leg to the floor (Steps 1 and 2).
- Step 6. Repeat with the right leg crossing over the left leg.
- Step 7. Repeat 7 times.

The Sitting Leg Twist exercise strengthens the abdominal and leg muscles and increases lower trunk mobility. It also reinforces trunk rotation.



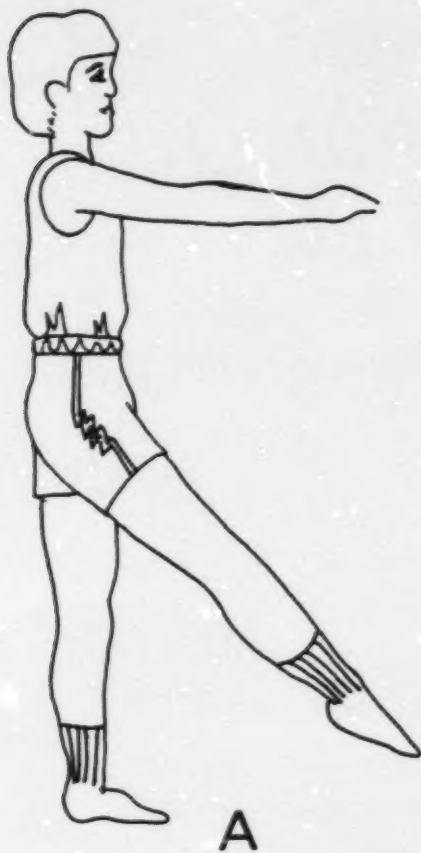
CHAPTER VII
ADVANCED EXERCISES

	Repetitions
1. Standing Leg Lift	5 (each leg)
2. Jumping Jacks	8
3. Bent Knee Push-Up	4
4. Rear Leg Lift to Hip Height	8 (each leg)
5. Airplane	16
6. Leg Curls	16
7. Leg Lift/Curl Up	8 (each leg)
8. Standing Knee/Elbow Touch	8 (each side)
9. Body/Leg Twist (Lying Down)	16

Standing Leg Lift
(Front and Back)

- Step 1. Stand with the feet about 4 inches apart. Maintain correct posture.
- Step 2. Extend the arms out from the shoulders in front of the body. Contract the abdominal muscles.
- Step 3. Shift the weight to the left leg, keeping the pelvis even.
- Step 4. Point the toes about 12 inches forward from the original position. The toes should rest lightly on the floor as the body weight is balanced over the heel of the left foot (Count of 1). Again, keep the hips even.
- Step 5. Inhale slowly and pull the abdominal muscles inward toward the back. Lift the right foot as high as possible while keeping both legs straight (Count of 2) (Figure A).
- Step 6. Return the right foot and arms to the starting position (Count of 3) and exhale.
- Step 7. Raise the arms from the shoulders in front of the body and point the right toe about 12 inches behind the original position (Count of 4). Keep the pelvis even.
- Step 8. Keeping the trunk erect and both legs straight, raise the right leg toward the rear as high as possible (Count of 5) and inhale slowly. Keep the abdominal muscles firm and do not allow the lower back to arch.
- Step 9. Return the arms and legs to the starting position (Count of 6) and exhale.
- Step 10. Lift each leg 5 times during the first week. Add 2 more lifts a week until 10 lifts can be performed while maintaining correct posture.

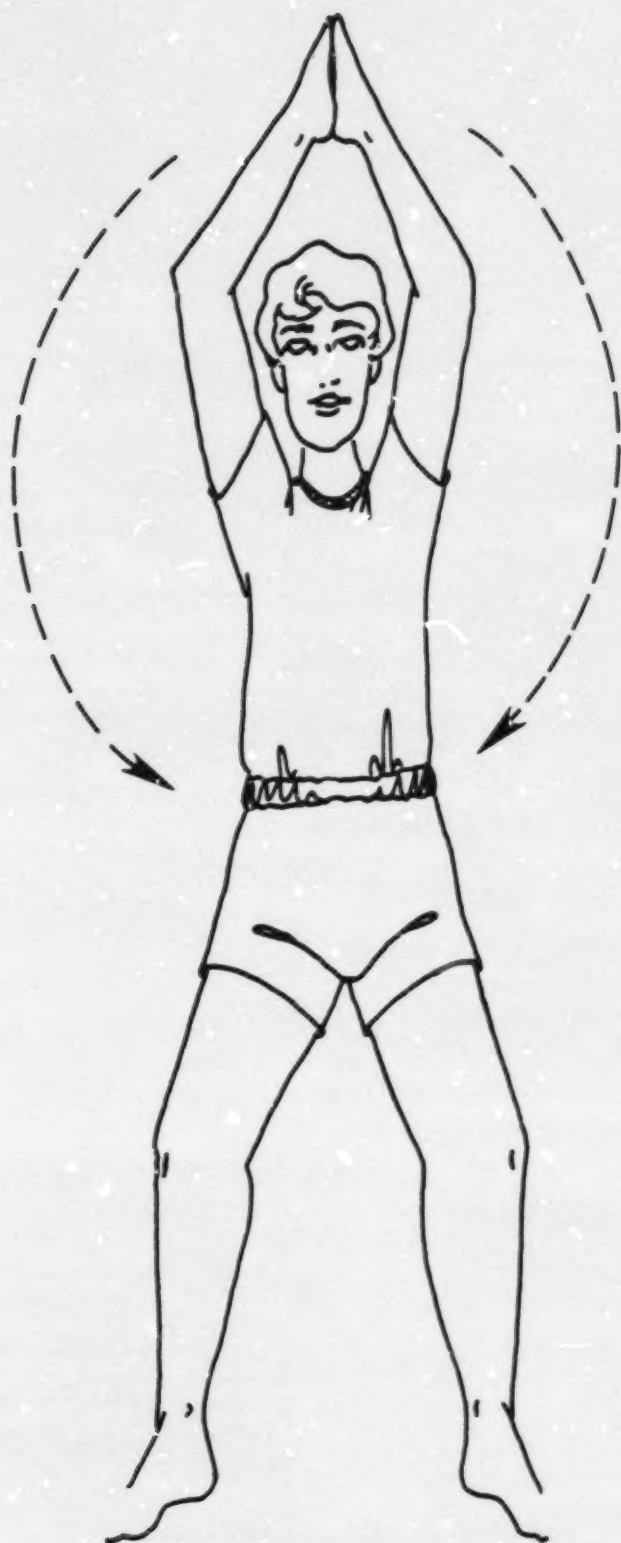
The Standing Leg Lift (Front and Back) exercise strengthens the leg, abdominal and hip muscles and improves posture, coordination and balance.



Jumping Jack (Carriage of Arms)

- Step 1. Stand with the feet together. The hands should be flat against the sides of the thighs.
- Step 2. Bend the knees. Contract the abdominal muscles and buttocks. Avoid letting the buttocks stick out. Keep the body held in the correct posture—avoid hunching the shoulders.
- Step 3. Inhale and lift the body into the air pushing with the feet. The feet should roll from a flat position on the floor to the balls of the feet and to a position in the air—2 or more inches off the floor. Simultaneously, carry the hands and arms straight out to the side and continue to carry them to a position over the top of the head.
- Step 4. When the feet are as high off the floor as possible, open the feet apart approximately 8 to 12 inches.
- Step 5. Land on the balls of the feet and immediately roll from the balls of the feet to a flat foot position as the knees bend. Clap the hands overhead as the feet land on the floor.
- Step 6. Lift the body into the air as in Step 3. Carry the arms to the original position beside the thighs. Pull the feet together while in the air. Land on the balls of the feet with the feet together as the knees are bending. Keep the abdominal muscles and buttocks contracted to maintain the correct posture. Exhale as this step is performed.
- Step 7. Repeat 8 times the first week. Add two additional jumping jacks each week until 16 jumps can be performed without a rest.

The Jumping Jack exercise strengthens the legs, back, abdomen, shoulders, and arms. It also helps coordination of the muscles in the arms and legs.

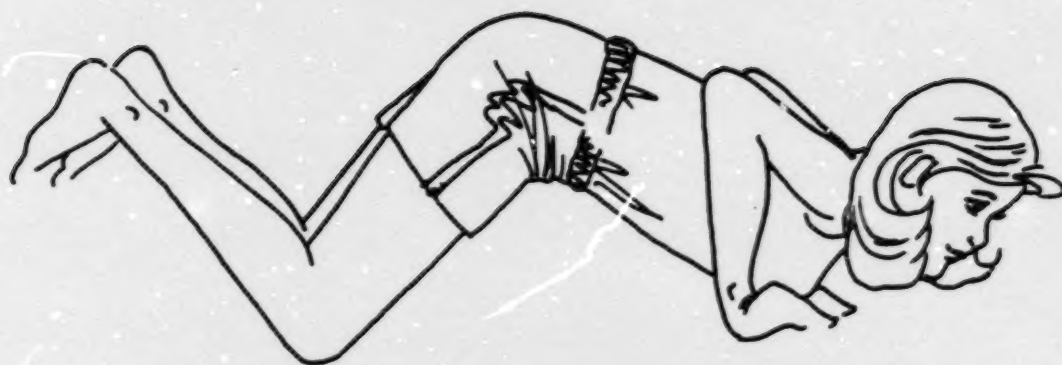


Bent Knee Push-Up

- Step 1. Lower the body to a hands and knees position on the floor.
- Step 2. Place the hands and arms about 12 inches in front of the shoulders and slightly bend beyond shoulder width. The palms should be flat on the floor with the fingers pointing forward. Keep the arms very straight with the elbows locked. Focus the eyes forward at a spot on the floor. (As the student develops strength, the hands and arms may be placed directly under the shoulders at the start of the exercise.)
- Step 3. Lift the feet off the floor. The weight will be distributed between the knees and hands. Contract the abdominal muscles. Keep the small of the back flat.
- Step 4. Shift the weight to the hands. Bend the elbows as the shoulders are lowered as far as possible toward the floor. Keep the elbows directly even with the hands by pulling them slightly toward the body. Keep the back flat and the abdominal muscles contracted (Count of 1).
- Step 5. Push the shoulders to the original position by straightening the elbows (Count of 2).
- Step 6. Repeat 4 times. Continue to add 1 set of push-ups as strength improves until the student can perform 16 sets during an exercise session. Coming down on the floor and pushing up is considered 1 set. It is recommended that the student sit and relax muscles for 5 seconds after performing 8 sets.

The Bent Knee Push-Up exercise strengthens the shoulder, upper back and chest muscles. The exercise is also useful in improving bilateral coordination.

Because push-ups from a bent knee position can be very strenuous on the chest, shoulder, and arms, the muscles can become sore when the beginner performs 4 or more sets. The students' arms may be too weak to perform 4 sets during the first exercise session. Encourage maximum performance but avoid forcing the student to go beyond his present capacity. Muscle fatigue or soreness will cause reluctance for further participation in the program.

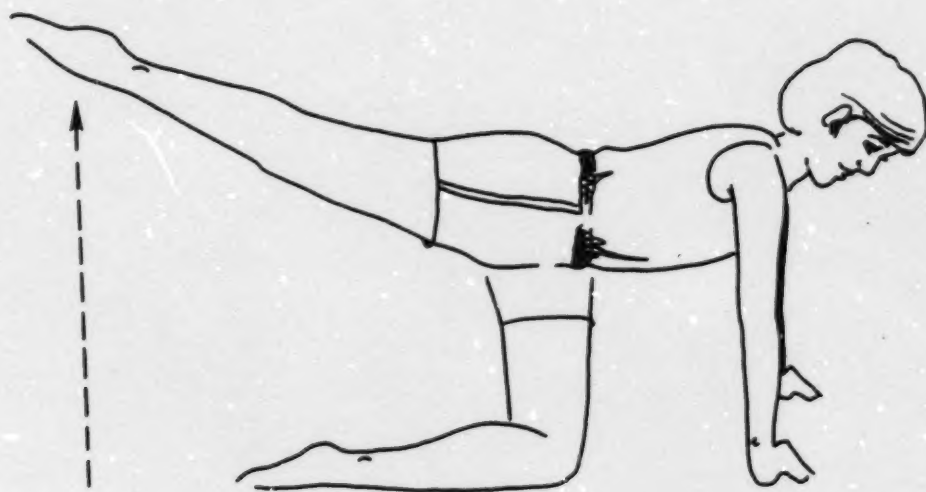


Rear Leg Lift to Hip Height

- Step 1. Take a position on both hands/knees on the floor. Keep the elbows straight and the fingers pointing forward.
- Step 2. Extend the right leg to the rear keeping the knee straight. The top of the toes will be touching the floor.
- Step 3. Lift the right foot off the floor keeping the knee straight. Focus the eyes on the floor.
- Step 4. Extend the right leg in the air as high as possible while keeping the back straight. The lifted foot will be elevated slightly higher than the hip (Count of 1). Lower the right foot to the floor keeping the knee straight (Count of 2).
- Step 5. Repeat 8 times. Return the right knee to a position on the floor beside the left knee.
- Step 6. Reverse. Perform the exercise 8 times with the left leg extended.

The Rear Leg Lift exercise will strengthen the buttocks and the backs of the thighs. The student must avoid letting the small of the back sway as a leg is lifted into the air. Contracting the abdominal muscles will help avoid the back sway. Concentration is directed on keeping the extended leg straight during the lifting and lowering of the leg.

The cadence is a moderate rhythm. The exercise may be increased until 16 lifts on each side are performed.

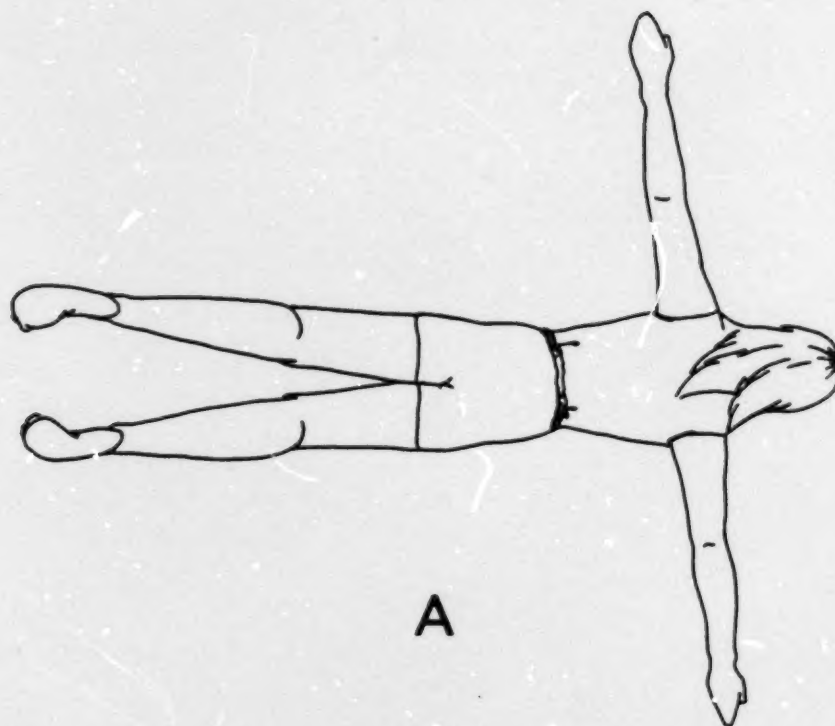


Airplane

- Step 1. Lie face down with the nose resting on the floor and the arms fully extended out to the sides (Figure A).
- Step 2. Raise the arms, head and shoulders from the floor (Count of 1). Keep looking at the floor so that the head does not tilt back. The arms should remain out straight (Figure B).
- Step 3. Lower the arms, head and shoulders to the floor (Count of 2).
- Step 4. Repeat 16 times.

The Airplane exercise strengthens the muscles which straighten the upper back. This exercise may be too strenuous for some students. If so, substitute the Raise Head and Shoulders exercise for this exercise.

The Airplane exercise should be performed at a slow to moderate cadence.



A

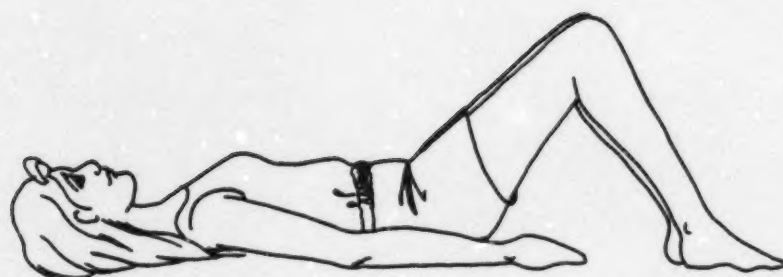


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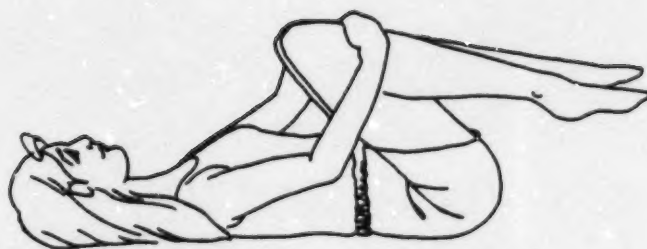
Leg Curis

- Step 1. Lie on the back with the knees and hips bent and the feet on the floor (Figure A).
- Step 2. Tighten the lower abdominal muscles and lift the knees to the chest slowly, curling the lower back. The student may use his arms to guide his knees, but not to pull them up to his chest (Count of 1-2) (Figure B).
- Step 3. Slowly return to position A (Count of 3-4).
- Step 4. Repeat 16 times.

The Leg Curis exercise strengthens the lower abdominal muscles and mobilizes the lower back.



A



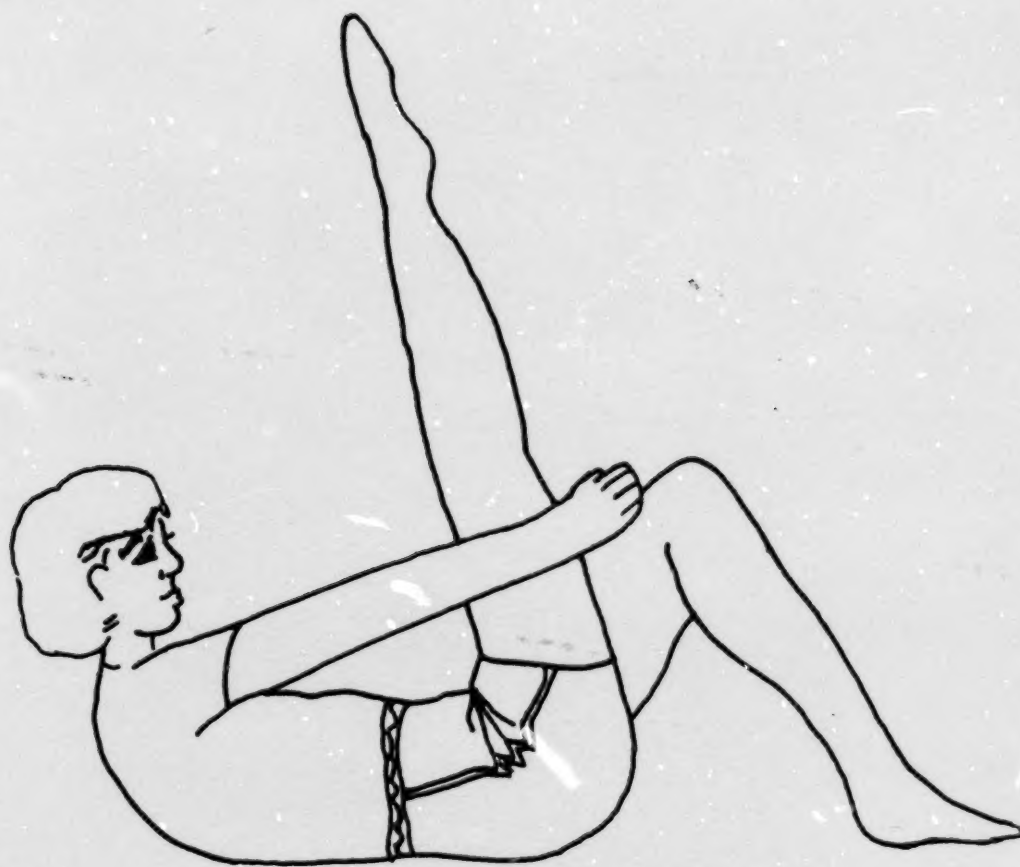
B

Leg Lift/Curl Up

- Step 1. Lie on the back on the floor. Bend both legs and place both feet flat on the floor. Extend the arms on the floor above the head. The palms of the hands should be pointing toward the ceiling.
- Step 2. Inhale slowly in this position (Step 1).
- Step 3. Lift the right leg off the floor toward the upper body. Keep the knee straight. At the same time, lift the arms off the floor and curl the head and shoulders toward the lifted leg. Clap the hands behind the lifted leg. Exhale during the performance of this sequence (Count of 1).
- Step 4. Lower the right leg to the floor as the shoulders, head and arms are returned to the original position (Count of 2). Inhale and repeat steps 3 and 4.
- Step 5. Repeat 8 times with the right leg and 8 times with the left leg. Add 1 repetition each week until the student can perform 16 repetitions with each leg.

The Leg Lift/Curl Down exercise strengthens the abdominal muscles, stretches the leg muscles, and helps develop rhythm and coordination. The student will be able to curl more of his upper torso toward the leg as the leg muscles stretch and the abdominal muscles strengthen.

Once the student has accurately mastered the correct technique, have him perform the exercise to a moderate cadence. Always do the curls smoothly, without jerking.



Standing Knee/Elbow Touch

- Step 1. Stand with the correct posture. The feet should be shoulder width apart.
- Step 2. Clasp the hands behind the neck. Draw the elbows back as far as possible.
- Step 3. Lift the right knee as high as possible. Turn the upper torso toward the right while bending slightly at the waist. Try to touch the left elbow to the right knee. Avoid letting the elbows pull forward. Keep them pulled back (Count of 1).
- Step 4. Return the right leg and the upper torso to the original position.
- Step 5. Repeat Step 3 with the left knee and the right elbow.
- Step 6. Repeat 8 times with each side for a total of 16 repetitions.

The Standing Knee/Elbow Touch exercise improves trunk rotation and increases the strength of the leg muscles. It also helps improve balance. This particular exercise puts some strain on the small muscles in the lower back. Therefore, it may be advisable to omit this exercise for those individuals with lower back pain or back deformities.

This exercise should be performed to a slow cadence while the student is learning the technique. A moderate cadence may be used later.

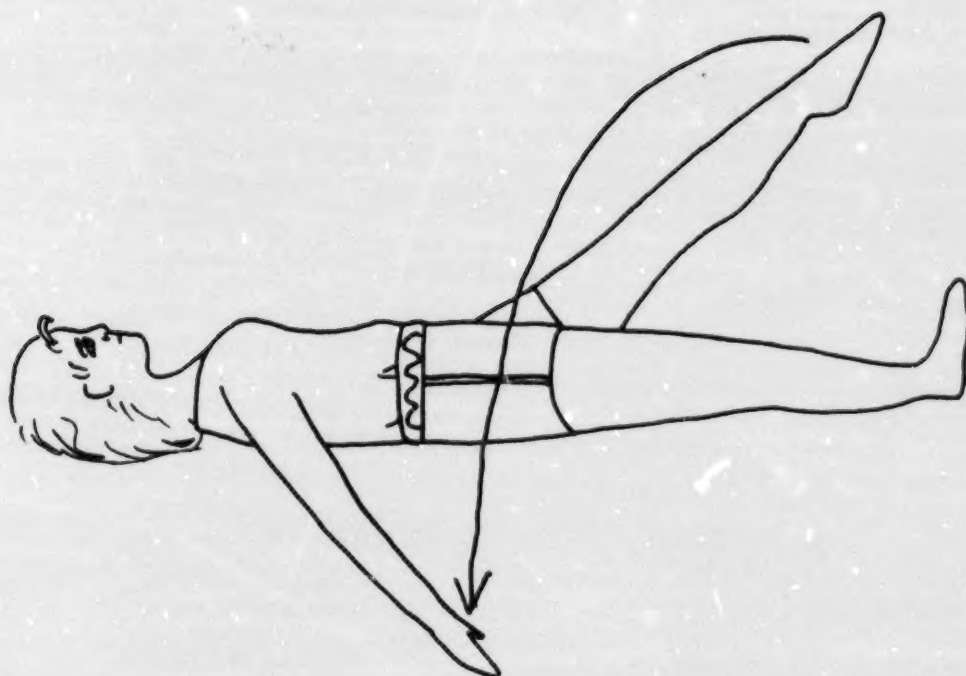


Body/Leg Twist
(Lying Down)

- Step 1. Lie on the floor on the back with both legs extended straight out in front of the body and the arms straight out away from the body.
- Step 2. Raise the left leg, keeping the knee straight.
- Step 3. Keeping the knees straight, bring the left leg across the right, twisting the hips to allow the left foot to touch the floor 12 to 24 inches below the outstretched right arm (Count of 1).
- Step 4. Return the hips and the left leg to the starting position as in Step 1 (Count of 2).
- Step 5. Repeat the exercise with the right leg crossing over the left leg.
- Step 6. Repeat 16 times.

The Body/Leg Twist (Lying Down) exercise strengthens the leg and abdominal muscles and increases lower back mobility. The exercise also reinforces trunk rotation.

This exercise should be omitted for any student who suffers lower back pain. You may substitute the Sitting Leg Twist exercise from the intermediate section for any student who experiences such pain.



CHAPTER VIII

COOL-DOWN PROCEDURES

	Repetitions
1. Knee Bands	10
2. Side Stretch	10
3. Floor Leg Stretch	10
4. Lunge	10 (both directions)

After a period of vigorous exercise which increases the heart rate, circulation, and perspiration production, it is necessary to spend a minimum of five minutes bringing the body back to a resting state. The active muscles have been helping with the increased circulation of oxygen rich blood through the body. When the activity is stopped, the muscles no longer help the circulation, and blood may pool in the large muscles, especially the legs. The student may feel faint or fatigued if this condition is permitted to exist.

It is necessary to keep the large muscles moving at a much slower pace while the entire system cools down. This can be accomplished by performing exercises which slowly stretch the large muscles—those muscles which have just been worked to full capacity. Some of the same exercises that were used in the Warm-Up Exercise Program are recommended for use in the Cool-Down Program.

These exercises must be performed at half the warm-up speed. The instructor should encourage the student to stretch to his maximum limit while performing each exercise. Stretching will help prevent muscle soreness in muscles that have been contracted frequently during performance of the Developmental Exercise Program.

The instructor should be attentive to the student's decrease in rate of perspiration and breathing. Remember, the body will slow and cool down when the stretches are performed at a slow, smooth pace. If the student continues to produce large quantities of perspiration and if deep breathing continues, decrease the speed of movement again and repeat the series of stretch exercises. The student should be breathing at a non-exertion (resting) rate after the cool-down exercises are completed.

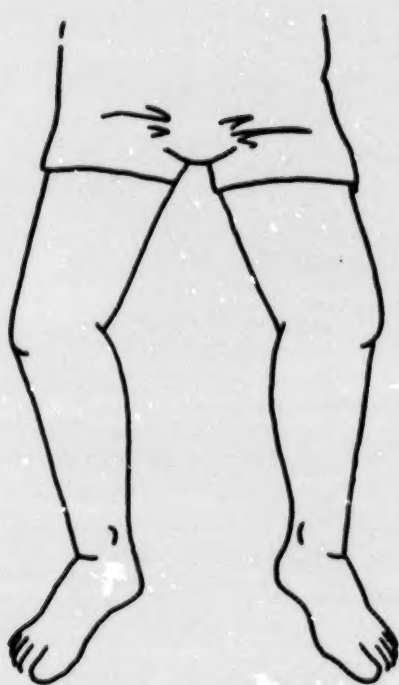
Knee Bends

- Step 1. Stand with the feet approximately 24 inches apart. Place the hands on the hips.
- Step 2. Keep the back and hips in alignment using the correct posture.
- Step 3. Slowly bend the knees while maintaining correct posture. Keep the small of the back straight and squeeze the stomach and buttock muscles (Count of 1,2,3,4).
- Step 4. Slowly return to a standing position (Count of 5,6,7,8).
- Step 5. Repeat 10 times.

The student should never bend so deeply that his buttocks are lower than his knees. This may cause excessive stress to the knee joint.

Caution: If the student has had knee surgery or complains of pain in his knees, limit the knee bends to a slight dip or omit them entirely.

Perform the exercise to a slow cadence.

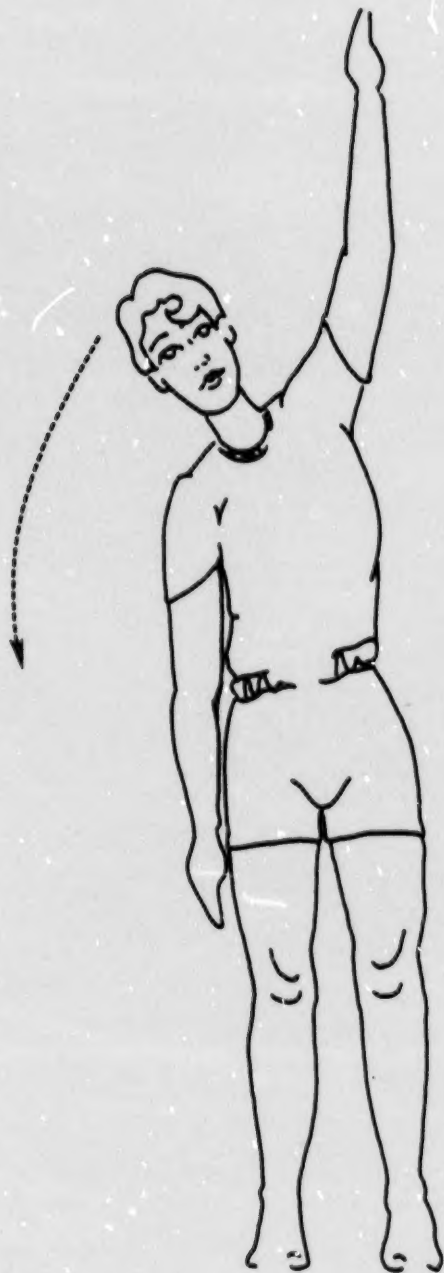


Side Stretch

- Step 1. Stand with the correct posture. Extend the arms out to the sides from the shoulders at shoulder height. The feet should be positioned 12 inches apart.
- Step 2. Bend slowly to the right and extend the left arm toward the ceiling at the same time. The right arm extends toward the floor. Keep both feet placed firmly on the floor (Count of 1,2,3,4).
- Step 3. Once the maximum stretch is reached on the count of 4, slowly return to the original standing position (Count of 5,6,7,8).
- Step 4. Reverse and perform the Side Stretch to the left.
- Step 5. Repeat 10 times on each side.

The Side Stretch exercise should be performed to a slow cadence.

It may be advisable to omit this exercise for those individuals who have lower back pain or deformities.



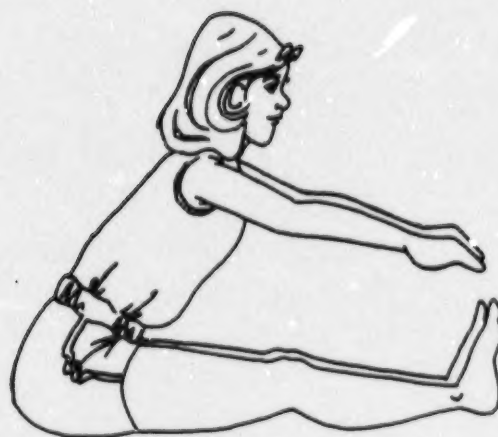
Floor Leg Stretch

- Step 1. Sit down on the floor.
- Step 2. Stretch the legs straight out in front of the body with the knees pressed flat against the floor.
- Step 3. Sit with the back very straight.
- Step 4. Keep the feet flexed as the toes are pointing straight up.
- Step 5. Place the hands on the hips.
- Step 6. Stretch the hands toward the feet keeping the backs of the knees on the floor during the stretching movement. Bring the hands as close to or beyond the feet as possible (Count of 1,2,3,4).
- Step 7. Straighten the body to the original position as the hands are returned to the hips (Count of 5,6,7,8).
- Step 8. Repeat 10 times.

The Floor Leg Stretch slowly stretches the muscles in the calves, thighs, and lower back to help avoid muscle soreness. Keep the exercise movements slow and avoid a rocking or bouncing motion when stretching toward the feet.



A



B

Lunge

- Step 1. Place the hands on the hips and stand with both feet together.
- Step 2. Contract the abdominal muscles and buttocks (Count of 1).
- Step 3. Step forward with the right foot. Keep the knee bent.
- Step 4. Extend the hands and arms straight out in front of the shoulders.
- Step 5. Keep the left foot stationary with the left heel firmly placed on the floor and with the toe pointed forward.
- Step 6. Keep the left knee locked.
- Step 7. The weight of the body should be shifted to the right as the hands are extended outward (Count of 2,3).
- Step 8. Return the hands to the hips and the right foot to the original position beside the left foot (Count of 4).
- Step 9. Repeat 10 times to the right and 10 times to the left.

It is necessary in order to stretch the calf muscles and achilles tendon. This exercise will help avoid soreness in the calf muscles.

Perform the Lunge exercise slowly.



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